

# THE AMERICAN JOURNAL OF PSYCHOLOGY

Founded by G. STANLEY HALL in 1887.

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VOL. VIII.

JANUARY, 1897.

No. 2.

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## A STUDY OF FEARS.

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As psychological research has lately tended towards will and feeling, the limitations, of both the experimental and the introspective methods, have grown increasingly apparent, and in some directions are now exiguous and almost painful. We can neither excite the stronger emotions in the laboratory nor coolly study ourselves while they are on under natural conditions. Moreover, the many instinct-feelings come to but very partial and incomplete expression in any single individual. To bring them out clearly, averages, mosaics, composites from many lives may, I think, be used to show both the relative depth and the vastly wider ranges of psychic experience. Childhood, too, must be explored, because despite the higher reaches of the adult consciousness much is, and by the necessities of growth must be, forever lost to it. There is a standpoint from which the adult mind, like the adult body, is decadent. It was in view of this general situation that we have evoked the aid of the questionnaire method in this field, striven to give it both new applications and new developments and devised a scheme of treating data, all of which together are bearing important fruits, and can do some things impossible before. By these means, too, psychology is brought into closer contact with human life over more and larger areas, and also given practical bearings, and that in several fields, as well as enabled to exert corrective influences on certain tendencies now too manifest in psychology.

Hardest and all important is the choice of a topic. This

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must often be so common and homely that the only wonder is no one had ever thought of it before as a theme for special research. It must be accessible to the psychological methods and have a certain ripeness and opportuneness. It must be specific, as opposed to the former blanket or omnibus syllabus. It must call for phenomena so marked that the non-expert parent or teacher can make reliable returns, as the untrained observers have long done to the official and voluminous questionnaires worked by four European anthropological societies, by students of meteorological phenomena, migratory instincts of birds, fishes, etc. Questions must suggest every main aspect, but no one answer rather than another, and must call for form enough so that the data can be fully treated statistically, yet must leave freedom enough to bring out details of all important cases which may be abridged and cited, as are clinical illustrations in medical literature, even if more briefly, because more numerous.

Such ideals are rarely if ever attained. The following report is well calculated, however, to show both the merits and defects of the method. It is based upon the returns to one of the thirty-two syllabi issued from Clark University up to September, 1896. Some preliminary tests had preceded, and in February, 1895, it was sent to 748 persons, about half of whom had heard of our series—of which this was No. IX—and had requested it:

1. Fears of celestial phenomena, as, *e. g.*, of winds, storms, thunder and lightning, heavenly bodies, meteors, sky falling, cloud, mist, fog and cloud-forms; end of the world and attendant phenomena; night and darkness, eclipse; moon breaking, that the sun may not rise; peculiar sky colors, northern lights, excessive heat and cold, loss of orientation, and points of compass.
2. Special inanimate objects, as fire and conflagration; water, drowning and washing or being washed; punishment and its instruments, and things and places associated with it; falling and of high places; uncanny places, as caves, ravines, gorges, forest gloom, high hills and solitude generally, and getting lost, or shut up; guns and weapons; points, sharp edges, very narrow or wide open spaces; dirt on garments or skin, and contact generally; vehicles and riding.
3. Living things, self-moving things generally; big eyes, mouth, teeth; dog, cat, snakes, pigs, rats and mice, spiders, bugs and beetles, toads, etc.; sight of blood, robbers and burglars, strangers, society and bashfulness; fear of being laughed at, talked of or being ridiculous; shyness of opposite sex; fear of fighting; cowardice, poltroonery, suspiciousness.
4. Disease, dying, death, loss of friends, position, fortune, beauty, or of health generally; heart disease, cancers, fits, consumption, starvation, fear of prevalent diseases, or of those read of.
5. Fears of the supernatural, *e. g.*, ghosts, spirits, witches, fairies, dragons or mythological monsters; dream fears, conscience fears, as of having committed unpardonable sins; punishments



specially incurred or sent from heaven, loss of soul and next world fears generally, fears of sin or impurity.

6. Describe any *sudden* experience you have felt or observed, and whether involving only distinct surprise or being intense enough to cause real shock, start or astonishment, with details of cause, effects and their permanence; terrors, without danger or cause other than an hereditary or a traumatic disposition to timidity.

7. In each case state order and age of fears, how long they lasted, how intense they were, what acts they prompted, and educational good or bad effects; was sleep affected? State specific symptoms, starting, paleness or sweat, urinations, rigidity, cramps, horripilations and "creepy crawling" feelings, nausea, weakness, fainting, flight, causes, treatment and cures.

This syllabus is drawn up by the undersigned, and is sent to *you* with the request that *you* will read it carefully item by item, and (1) jot down at once in the easiest form of notes whatever each paragraph or phrase recalls of your own childish fears; (2) that if you are a parent you will add to this any observations this paper may suggest or recall on your own children (it may aid you if you keep a "life book" or memoranda in any form about them); (3) that if you are a teacher, you will read this paper to your class, write it on the board, or give it to individual pupils (of upper grammar or high school grades) and ask them to write as an exercise in composition (setting apart an hour, or asking for out of school work) an account of their own early or present fears; (4) if you are a normal school principal or teacher of psychology, you may connect it with the class work in the study of feelings or emotions; (5) if you are a principal or superintendent, you can assign the work to some teacher or advanced pupil to collect the data. All returns may be anonymous if preferred, but age, sex and nationality must be stated in every case.

Returns may be sent direct to the undersigned or, if preferred, may be studied by you, and will make the best of material for a lesson in psychology, for a discussion in a meeting of teachers or mothers, or an address, or an article for the press. When you are entirely done with the material thus gathered and used, send it to the undersigned.

This syllabus was reprinted in several educational journals in this country and in England, and was also privately printed and multiplied by teachers and others. Returns which are the data of this paper were received as follows:

E. H. Russell, principal of the State Normal School, Worcester, Mass., sent 266 papers, each describing a single case of fear. These had been previously written, with no reference to any syllabus, but were the fear cases selected from nearly 40,000 returns made by his pupil teachers according to a method elsewhere described.<sup>1</sup> Their chief merit is conciseness, an attempt at photographic objectivity and absence of comment. Of these 134 were original observations, 88 reminiscence, 39 hearsay, and the rest from literature. They are well distributed between the ages 4 months and 12 years, and

<sup>1</sup> *Pedagogical Seminary*, Vol. II, p. 343.

the sexes reported on are nearly equal in number, except the reminiscences, which are mostly by females.

Miss Lillie A. Williams, head of psychology at the Trenton, N. J., Normal School, sent reports by 461 persons, of which 118 were original, 163 reminiscence, 75 hearsay. The reminiscences averaged six or seven pages of note paper each. The other 105 were compositions on their fears, past and present, by girls from 5 to 18. Miss Williams has developed the most effective of all methods for collecting valuable returns to questionnaires, which is described elsewhere.<sup>2</sup>

Principal H. S. Baker of St. Paul sent 552 papers, well distributed over all grades; those older writing their fears in the form of a composition after having the syllabus read and explained, and the younger children having their answers written by teachers.

Principal R. G. Huling of the English high school, Cambridge, Mass., explained and assigned this as a topic for one of his daily themes, and sent returns from 77 juniors, 6 intermediates, 55 undesignated, and from the main division of his school volunteers brought 18 returns and obtained 17 from children, making in all 173.

Miss Hughes, principal of the training school at Cambridge, England, sent 43 one hour compositions of unusual merit, by girls of from 17 to 22 years of age. Miss Harriman of Providence, R. I., sent 23 compositions very similar to the above. Miss Stickney of the Hughes high school, Cincinnati, O., sent 45 compositions on their fears by senior girls. Superintendent Pease of Northampton, Mass., sent 46 volunteer compositions by children of from 13 to 16. Mrs. J. M. Dewey of North Adams, Mass., 19 high school compositions; the Buffalo Seminary, 18 compositions by young women from 17 to 21; J. W. Dixon, 17 fear compositions by girls averaging 16; 38 were from friends and pupils of mine and others, some of whom have written with the greatest care and fullness.

Too late to be included in any of the tables, but utilized along with the above for illustration, and in discussing special fears are the following: 115 supplementary returns on special fears from Miss Williams; 27 volunteer compositions on their fears by seniors in Bowdoin College, sent by President Hyde; 44 well digested returns from children of 13 and 14, by Miss H. M. Bullis of Summit, N. J.; about 200 well classified returns sent anonymously, and other returns on specific points especially asked for, from various other sources.

<sup>2</sup>See her article, "How to Collect Data for Studies in Genetic Psychology," *Pedagogical Seminary*, Vol. III, p. 419.

The data used for the first tabulation, therefore, consists of the records of the chief fears of 1,701 people, mostly under 23 years of age, gathered in different places and by methods without great uniformity, and 386 supplementary reports and many returns or special points, all written on nearly 4,000 pages. Some merely list the objects they fear, and others give copious details of a single fear or even fright; some report half a dozen fears of their own and add others of their friends, sometimes omitting not only age, but sex. Thus the problem of statistics was rendered exceedingly difficult, and each table is based upon only those returns which yield its data, so that everything had to be gone over independently for each table. With the expert aid of Miss Watson, assisted by Miss Rawson and others, every individual was first represented in large tables by a line showing each of his or her fears, with age and sex, and with fullness of presentation marked on a scale of 10, with hieroglyphic signs for special features and a wide column for miscellanies. In these elaborate charts returns from each locality were kept by themselves, and running numbers referred to the original papers. It is upon these, too many and too voluminous to print, that the tables below are based. The 112 hearsay cases were discarded.

Next I read every paper with care myself, copying every salient or typical phrase and word, but dropping what was irrelevant, and condensing wherever possible. These cases were written as they came, and when all was done, scissored into several thousand slips, and with great labor brought into natural groups, and thus allowed to classify themselves. Each of these groups was later studied by itself, and, after each case had been brought next to that which it most resembled, all were pasted in due order. This process gave me several hundred closely written pages of topically arranged experiences, the reading of which, subject by subject, without a word of comment, the best members of my class have intimated was followed with the very greatest interest, and was a fresh breath from life full of stimulus and suggestion of new and larger fields for the psychology of the near future. As a pedagogic as well as a scientific method, subsequent experiences, too, are increasing my own sense of its exceptional worth. Like the above preliminary tables, this form of the material is too voluminous to present in full, but in all the descriptions of the special fears which follow, I have had them under my eye, so that although my pages are not disfigured with quotation marks, I have followed the very phrases of the returns as closely as possible, and it is only by exercising the greatest self-control that I refrain, despite limitations of

space, from doubling my pages with the records of cases of great interest.

The above 1,701 persons have described 6,456 fears, which are first very roughly grouped as follows, according to the objects feared:

TABLE I.

Celestial Phenomena.		Animals.	
Thunder and lightning,	603	Reptiles,	483
High wind,	143	Domestic animals,	268
Cyclones,	67	Wild animals,	206
Clouds and their forms,	44	Insects,	203
Meteors,	34	Rats and mice,	196
Northern lights,	25	Cats and dogs,	79
Comets,	18	Birds,	51
Fog,	16		
Storms,	14		1,486
Eclipses,	14		
Extreme hot weather,	10	Fire,	365
Extreme cold weather,	8	Water,	205
	996	Drowning,	57
			627
Darkness,	432		
Ghosts,	203	Strange persons,	436
Dream fears,	109	Robbers,	153
Solitude,	55		589
	799		
		Death,	299
		Disease,	241
			540

This accounts for 5,037 fears, leaving 1,419 directed to many scores of objects to be discussed later. It would appear that thunder storms are feared most, that reptiles follow, with strangers and darkness as close seconds, while fire, death, domestic animals, disease, wild animals, water, ghosts, insects, rats and mice, robbers, high winds, dream fears, cats and dogs, cyclones, solitude, drowning, birds, etc., represent decreasing degrees of fearfulness. When we specify reptiles, domestic animals, insects, birds, the kinds of disease, strangers, dream fears, and add the miscellaneous fears, we have in all 298 objects feared. This order, however, is not quite the same in different localities. In Cambridge, Mass., alone thunder and lightning does not lead, and self-consciousness, dreaded by 24 boys there, does not appear in either Trenton or St. Paul. In the latter place 67 fear cyclones and only 8 the end of the world, which has 62 victims in Trenton, where also 46 fear being buried alive.

The St. Paul returns, moreover, show an average of 4.86 fears for each person, those from Trenton 3.66, while the Cambridge, Mass., boys report 2.28 each. Whether this indicates more fears, more frankness, or, as I suspect, more importance attached to the work, and greater interest in it at St. Paul than at Cambridge, there is nothing to show. The St. Paul fears lead all others in intensity and objective realism; their quality is more primitive, and they have less variety. Here we have 7 out of the 9 children who declare that they "fear nothing," and 4 out of the 7 who "fear everything," and here only we meet with fears of train robbers, having to sleep on the porch, and starvation. Yet while one could not read the fears in any group of returns without inferring whether the children lived in the country or city, by the sea or in the hills, all the local coloring is, on the whole, surprisingly small.

Selecting next from our returns the 1,106 well described fears of 500 boys and the 1,765 fears of 500 girls on the 28 topics below, they were tabulated as follows to show the effect of sex:

TABLE II.

	F.	M.		F.	M.
Thunder and lightning,	230	155	Blood,	44	14
Persons,	190	129	Heights,	40	43
Reptiles,	180	123	Self-consciousness,	40	28
Darkness,	171	130	Noises,	36	10
Death,	102	74	Buried alive,	32	5
Domestic animals,	96	57	Imaginary things,	24	23
Rats and mice,	75	13	Drowning,	20	19
Insects,	74	52	Clouds,	15	4
Ghosts,	72	44	Solitude,	15	4
Wind,	61	35	Places,	14	2
End of world,	53	11	Meteors,	12	6
Water,	53	62	Shyness,	8	9
Robbers,	48	32	Fairies,	7	
Mechanism,	47	31	Ridicule,	6	1

Thus out of 500 girls 230 report fear of thunder and lightning, while the same number of boys report this fear but 155 times. In this, in fears of the end of the world, rats and mice, blood, and being buried alive, girls most lead boys, while boys excel girls only in fears of water, height and shyness. From the above it will appear that each of the boys has 2.21 fears, while each of the girls has 3.55 fears.

Again, out of all our returns, 516 boys with 1,521 fears and 671 girls with 3,101 fears were selected and grouped by age to show the relation of age to fears for both sexes as follows:

TABLE III.

AGE.	M.	AV.	F.	AV.
0—4	36	1.76	74	4.89
4—7	144	1.54	176	2.44
7—11	104	3.56	227	4.34
11—15	140	3.69	127	6.22
15—18	72	2.40	38	10.67
18—26	50	2.55	29	4.31
	524	(2.94)	671	(4.62)
		2.58		5.46

Thus 36 boys below 4 years of age return 1.76 fears each, while 74 girls of the same age average 4.89 fears each, etc. All these boys record 2.94, and all these girls 4.62 fears each. The fears of the boys increase from 7 to 15, and then decline, while those of the girls increase more steadily from 4 to 18.

Taking the sexes together, the following classes of fears show decline with advancing maturity: meteors, clouds, blood, end of the world, being kidnapped, fairies, loss of orientation, shyness of strangers; while the following seem to increase: thunder and lightning, reptiles, robbers, self-consciousness, machinery. Increase during pubescent years, with subsequent decline, appears in wind, darkness, water, domestic animals, insects, ghosts, death and disease. With scores of other fears the numbers are too small even to give valuable suggestions. Important as is the influence of age, its determination has been baffling throughout; increased power as well as love of expression is a concomitant variation. While many special fears decline and others increase with age, many infantile fears remain through life, and scores of our reporters say there has been no change in their fears.

Passing now to our special groups, we begin with:

### I.

#### FEAR OF HIGH PLACES AND FALLING: GRAVITY FEARS.

(All the cases in this and the following sections are selected from a large number.)

1. F., 16.<sup>1</sup> Has no fear of falling from high places, but the impulse to throw herself down is so intense she must strain every muscle to get away, and must often call for immediate help; often there is a sense of smothering.

2. F., 17. Describes the same impulse in order to see how it feels going down, and is exceedingly curious to know how it would feel to fall very far.

<sup>1</sup>F., 16—Female sixteen years old. M.—Male.

3. *F.*, 12. Could only go up a high elevator by having a handkerchief tied over her eyes; when at the top she trembled and felt like leaping down till blindfolded again.

4. *F.*, 13. At the top of a high building was irresistibly impelled to squeeze between the bars of the railing to see if one could fall to the pavement; is sure she would have landed there if she had not been held, and describes it as an outside power forcing her against her will, as very terrible and conquering her control.

5. *M.*, 15. Could never climb the smallest tree; happening to glance over high banisters lately, he sprang back across the hall with a shiver lest by sudden impulse he should hurl himself down, and lie a mangled mass.

6. *F.* A young Scotch lady has such dread of falling that she can never go up or down stairs when it is dark, and never except very slowly; for the same reason she could never learn to skate, and often in slippery weather stands still and cannot take a step; she once tried rolling down hill with other girls, but trembled for an hour; can do nothing on gymnastic apparatus; is never giddy, and never had a bad fall.

7. *F.*, 17. On going down an elevator always feels that she is going straight to the bottomless pit spoken of in the Bible, and has nausea if she gazes down; wells have always had a great fascination for her; she never liked to stand and gaze down them, but had to.

8. *F.*, 37. Can never enter a store with a big sign over the door, lest it should fall on her; if it swings or creaks, it is all the worse; she is always fearing the stars will fall and crush the earth, or that meteors will drop on her.

9. *F.*, 10. Has for years had the greatest desire to look down a very deep well which the children thought bottomless, but has never yet dared.

10. *M.*, 11. When on a high place always wants to try to fly off.

11. *F.*, 23. Almost faints to see others on high places.

12. *F.* Can never cross a ravine or high bridge nor sleep in an upper story.

13. *M.* A professor of psychology, age 50, was fearless of high places through his youth, but soon after college saw a servant fall from his room four stories, helped bring him in, went for a doctor, but since cannot sleep in high rooms at a hotel; tried in vain to ascend Bunker Hill monument as a discipline, but found the tension too great when half way up; could only get over the suspension bridge at Niagara eighteen years later by walking in the middle and grasping a carriage; the fear is rather more that the whole structures may collapse, but partly that he will lose control.

14. *F.*, 17. Cannot look straight up without dizziness and fear of falling and sometimes losing her footing.

15. *M.*, 17. Is almost as afraid to look up as down heights.

16. *M.*, 46. Can never sit under the chandeliers at a theatre, nor under the front of a gallery, for fear things will drop on him.

17. *F.*, 16. Has never been able to sail past the Palisades on the Hudson without fearing they would fall.

18. *F.* A lady's only memory of her grandfather was that he would lift and toss her high.

19. *F.*, 8. Was visiting a large farm, where she was very happy till she learned there was a well on it, when she ran in, wept and



prayed to go home; "she cried all night, and was always so about wells."

20. *M.*, 30. Can never sit in front row of the gallery at church.

21. *F.*, 28. Can only do so by clinging tight to the next person, "lest I should leap down on the congregation."

22. *F.* A mother says her eight children have always been intensely excited on being lifted towards the ceiling.

23. *F.*, 56. Went to the top of the Eiffel tower and enjoyed it greatly, but the memory of so doing has since come to fill her with nightly terrors.

24. *F.*, 24. Can never go up any open stairs or steps "without mortal trepidation lest some one should catch my feet."

25. *F.*, 27. Can never walk up steps or on iron flooring with openings as large as a pin lest she should fall through.

26. *F.*, 40. Is haunted with the fear of falling down stairs, and at night often sees herself a mass of broken bones at the foot.

27. *M.* An officer in a woman's college; has for many months suffered with great and sleepless anxiety lest the college girls should be hurt running down some steep bank.

28. *M.*, 3. Is horrified at riding down hill, shouts "drive slow!" clutches his mother's arm, gets nervous and trembles.

29. *F.*, 18. Can never look out of a window above the first floor without feeling she must jump to get the beautiful sensation of dropping through the air; she is not dizzy, but has a sinking feeling at the heart.

30. *F.*, 18. Has worried for years lest she or others might fall off the earth into space; this danger she deemed greatest at night, when all was upside down, but it was possible any time.

31. *M.*, 18. Otherwise normal, has never been able to ride in any kind of vehicle, neither cars, bicycles, boats nor carriages, and describes another boy of 15 with the same fear.

32. *F.*, 16. Loves driving, but has a horror of going up hill or down.

33. *F.*, 27. Can never ride in a carriage with comfort, for she always fears it will break and let her drop.

34. *F.*, 17. Can never drive over mountain roads that go near gorges or steep places. The last four cases each state that their fear has been caused by no accident.

35. *M.*, 16. The horror of hell is, you are always falling.

36. *M.*, 45. The chief fear is that he will leap out of the window in his sleep; he takes precautions every night, but never yet got up in his sleep.

37. *M.*, 21. In his early teens he dreamed so often of flying that he often woke feeling sure he had found out how; it became very pleasant.

38. *F.*, 9. Feared she should fall through cracks where puddles had dried.

39. *M.*, 31. Is sometimes impelled to sacrifice all when on a high place to get the exquisite pleasure of dropping, with a wild feeling he might be borne up a little, or strike a soft spot.

40. *F.*, 6. Would not go to heaven, it was so high and she might fall.

41. *M.*, 67. Speculated much on the effects of "reversed gravity," which he thought probable sometime.

42. *F.*, 6. Used to have great fears of being carried as a baby;

was once startled at a high hill suddenly seen in riding, and could not bear to have a cloud get directly overhead.

Some come to rather like the sensation of hovering, as case 37, and perhaps 10 or for a time almost think they can fly from nightmare experiences. (See under dream cases 41 and 30.) For 2, 10 and 39 the sensation of dropping or sinking seems to have a charm so strong as to endanger control. For nearly all, these feelings are dreadful, and they may be caused by going up or down hill, 27, 28, 32; or stairs, 6, 26; or by the smallest openings 38, 25; may make every kind of riding a terror, 31; even to stand on ice is too suggestive, 6; galleries and second stories are avoided, 13, 12, 21, 20; wells and elevators are shunned, 7, 9, 19; to see others high, or to look down or even up, is painful, 11, 15, 14; and perhaps the dread of seeing things above, as 8, 17, 16, belongs here. Case 30 is one of many cases I have collected of "symptoms" of the thought of falling into space, or in even thinking of infinite time or space, which makes many dizzy and nauseated, (see later paper on sense of self, and what I have called *cosmic giddiness*, or cosmic agoraphobia).

These gravity fears are so common that it would probably be very easy to enlarge the above anthology of cases indefinitely, and every reader will readily add to it from his own or others' experience. Such fears, it is safe to assume, are very largely due to falls, etc. Despite the symptoms common to all fears, and even despite the absurd tendency to give Greek names to objects feared (which, as Arndt says, would give us such terms as klopsophobia=fear of thieves, triakaidekaphobia=fear of the number 13, and following which the 298 things feared in our returns might each have its name), without any suggestion of a new morbid entity, it would be convenient to have a term like barophobia for the gravity fears, and eluæsthesia for the group of falling sensations, and anakataesthesia for hovering, etc.

In actually dropping through space, the usual pressure of brain, heart, liver, kidneys and all other parts of the body upon those beneath is removed. The stomach with its contents is often the first to be affected, and nausea arises. Besides the tension caused by the tonus of the arterial and venous walls, the blood in the erect posture exerts the pressure of fluids in upright tubes. In falling this latter is removed, as in being lifted the conditions of pressure would be reversed. How this modifies sensation is unknown, but it is not impossible that the gravity movements of the fluids of the semi-circular canals represent a specialized function and organ once common to all vessels. Breuer<sup>1</sup> thinks he has proven

<sup>1</sup>Über die Function der Otolithen Apparate von I Breuer. Pflüger's Archiv. Bd 48. P. 195.

that the gravity of the otolith plates in the ear pulls the cell hairs and excites thus in the centers the sense of the position of the head, and are organs of a specific feeling for vertical and progressive motion. These constitute the organ for a static sense, giving impressions of translation, as the ampullæ do of rotation, in the three planes of space. It is even suggested that out of the function of sensing disturbances in the surrounding medium that endanger gravity the perception of sound waves has been developed as a secondary function. Again heart action and circulation are modified in falling, and so is respiration. As lungs have taken the place of swim-bladders, the unique respiratory action of hovering as in nightmares, with all the anakatæsthetic phenomena, and perhaps the eluæsthetic sensations of a falling which are quite distinct from the former, although not without common elements, suggest the possibility that here traces of function may have survived structure. Inhalation is harder, and in dropping great distances the residual breath is sucked from the lungs. The removal of the pressure always felt on the soles of the feet, podex, or other sustaining surface, and the approximation to a prenatal state of fluid pressure on all sides, visual, auditory, perhaps now muscular coördination,—all this brings conditions throughout every part of the body which are unique in a high degree.

Our animal ancestors were not birds, and we cannot inherit sensations of flying, but they floated and swam far longer than they have had legs, had a radically different mode of breathing, and why may there not be vestigial traces of this in the soul, as there are of gill slits under the skin of our necks; and why may not the former come to as great prominence in exceptional states and persons as the latter do in some monstrous human births? To deny it is to make the soul more limited in its backward range than is the body. For one I am too idealistic and cannot think so meanly of the soul as to do this. Although it cannot be demonstrated like rudimentary organs, I feel strongly that we have before us here some of the oldest elements of psychic life, some faint reminiscent atavistic echo from the primeval sea, not as primitive as the strange geotropism of plants, but antedating perhaps limbs, and possibly even visual factors of space perception, and which could it be dissected and explored far enough might lead us, in connection with II and III seq., near the psychoplasm of the spatial quale itself. Indeed I may be teratological, but to me sensations of hovering, gliding by a rather inner impulse and not by limbs, falling and rising have been from boyhood very real both sleeping and waking, and I may add with as-

sured soundness of heart, lungs and stomach, although if caused by disease it would not hurt the argument.

Again, man's erect position is exceptional and lately acquired. The exhilaration of a child at its first step is due to a real feat of balancing. The vigorous soon love to play with these sensations in tossing, baby jumpers, coasting, swinging, the motions of vessels at sea, mountain climbing, ballooning, tight rope, bridge jumping, and now flying. Lotze ascribes the æsthetic pleasure of stilts, high heels, tall hats, etc., to the exquisite exhilaration of slightly raising the centre of gravity. The monkey-like propensity of children at a certain age to climb everything, everywhere, which needs special investigation, is another illustration, and so in a different way is the rhetorical device of a German professor who had three steps, on one or more of which he could rise to express to himself and enforce to his hearers the relative emphasis or loftiness of his utterance. The words buoyancy, exaltation, and conversely heaviness and depression, are suggestive. Unusual vigor of muscles gives a sensation of lightness, amounting sometimes almost to a belief in levitation, or in the reality of the state of rapt ecstasy, or in the glories of a physical ascension. On the other hand, cases like two I know, of persons with exceptional fragility of bones, which were at any time liable to spontaneous fracture, and who therefore had just fears of standing that would otherwise seem morbid; or hypochondriacs, like Tolstoi's case of the man who thought he was glass, slipped one day, despite all his preposterous precautions, said smash and died; or cases of inverted gravity, like No. 41, or a paranoiac who, when about to hurl a visitor from the roof to show God's sustaining power, desisted at the suggestion that this power would be still better shown if both should go down and jump up;—all show not primitive, but perversely developed forms of the baræsthetic sense.

These latter and most of our fear cases may be considered as instances of arrest, some at the stage before erect position was acquired (6, and perhaps 25, 26, 27 and 28, and many fears of falling over if near steep places), and others as due to an awakening of the normal impulse of the young of the human species to get up, not only to the full length of the body, but beyond. At any rate, where in the soul might we expect to come upon traces of far past conditions if not in such massive impacted sensations as these? Must we not assume function to be as old and as diversified as organs? Even its morphogenic value may be far beyond the wildest dream of Lamarck if we accept such speculations as those of Cope or even of Roux. As Quincke and Bütschli and others

find, the earliest protoplasmic structure is governed by the physical laws of surface tension, and currents that control oil emulsions, and which are still seen to be active in blood corpuscles and fixed in the cell structure of tissues like the liver, etc., so we must assume the earlier life of the soul to be formed on the basis of such fundamental relation with physical nature.<sup>1</sup>

## II.

## FEAR OF LOSING ORIENTATION.

1. *F.*, 7 to 10. Often woke up in terror and cried loudly because she could not think where she was, even whether in bed or not.

2. *F.*, 19. Sweats, feels faint and nauseated if she cannot instantly locate every door and window on waking nights.

3. *F.*, 20. Is speechless and motionless with dread if she wakes up crossways or diagonally in bed, often thinking she has been carried elsewhere.

4. *F.*, 19. Used often as a child to wake up on the floor, and had to creep around to find the bed and everything else; was sick, dizzy and frightened, and thought she could never be right again.

5. *F.*, 17. Often wakes with a sensation of being in the wrong bed, with windows misplaced, or being surrounded by thick walls, with a peculiar feeling of suffocation.

6. *F.*, 18. Can never have furniture moved in her bedroom, because the feeling of being turned round gives her a terrible panic.

7. *F.*, 21. Never has suffered from any other fear so great as that of getting lost or turned around in bed; in every strange place this fear keeps her awake; she has always been haunted with fear that she should lose her way from school and go off in the wrong direction, although the ground was very familiar; the fear of getting the wrong class room always haunts her; she can never enter the smallest forest, and can never turn a corner or curve without fearing it is wrong and painfully fixing the angles in her mind.

8. *M.*, 12. Suffers from the constant fear of losing the points of compass in city or country.

9. *F.*, 20. Awakes in anguish till she knows which way is north, and the sense of lost direction may come suddenly and stunningly upon her anywhere.

10. *F.* An English woman is haunted by the thought of losing the points of compass in some wood; it is accompanied by a sickening sensation, and sometimes by the fear of dying alone of starvation.

11. *M.*, 7. Clings desperately to his mother when turning any angle, shopping, or elsewhere.

12. *F.*, 35. In a sea voyage suffers from an elaborate fear that the ship will lose her chart or compass.

<sup>1</sup> See especially O. Bütschli, "Untersuchungen über Mikroskopische Schäume und das Protoplasma." Leipsic, 1892, p. 139 *et seq.* Verworn, "Allgemeine Physiologie." Jena, 1895, *Passim*, and especially on Barotropism, p. 428 *et seq.* Dantec, "La vie." Paris, 1896, p. 34-50. Wm. Roux, "Ges. Abhandlungen." Leipsic, 1895. Cope, "Primary Factors in Original Evolution." Chicago, 1896, ch. X.

13. At 10 F., 17, "began to realize eternity and think on the end of time, space and the world;" this brought a feeling of weakness and palpitation; "made her serious and thoughtful," and she developed a ritual of Bible verses and hymns for such occasion.

14. F., 25. Has "always had a horror of the vastness of eternity; the most creepy feelings came over me at the thought; these things haunted me till twenty, when a reaction came, and I thought I believed in annihilation and loved the idea of being universally diffused."

15. F., 21. Never could go off with her mates because of the incessant fear lest they should hide from her; to be lost for an instant brought the most sickening feeling.

16. M., 42. A college teacher, ambidextrous, has always had difficulty in telling right from left; at corners must often pause and think, is always getting turned around, and sometimes grows nervous about it.

17. M., 27. Studied a year in Berlin, but was never happy there because east would seem west and the sun went the wrong way.

18. M., 72. A very intelligent farmer, has never been but twenty-two miles from his home, because he dislikes strange places and people, and might get lost.

19. Till F. was 3 she saw very little of outdoors, and then it oppressed her; to attend to distant things seemed painful, and she would never go twenty feet from the door.

20. M., 3. Had all one summer an uncontrollable passion for running away; his proclivity was to get away at any time, anywhere.

21. M., 33. Must have a map of every town or city he is in or carry one in his head, or else he gets confused.

22. F., 18. Could never go the shortest distance across lots, no matter how plainly she can see across, without getting confused and turned round.

Some or all of the first six cases above may have struggled out of a dream of a very different environment, with strange and possibly alarming features. Children's dreams of place are very vivid and melt like dissolving views into the waking sense of the real environment. "Where am I?" is often the first problem of their morning consciousness, and there are often as strange oscillations and mosaics of the two states, as in hypnagogic phenomena. Everything in the room is a lighthouse or buoy to aid them into safe harbor from the far dream voyages, and so cannot be moved without confusion. Some writers attach the greatest importance to spontaneous and especially to complete waking. Dread of getting lost is common, 15, 18, 19, and may be hypertrophied, and the attractions of "sweet home" may be even too strong. Children differ immensely in the quickness and certainty of learning the environment, and probably even more in the vigor and courage to explore it. Cases like 8 and 19, and perhaps 9, 10 and 15, almost suggest atavistic relapse toward the early forms of sessile life, or attachment to parental



bodies, and remind us how slow and late in the animal series well developed locomotor organs came. On the other hand the propensity of children to run away is very common, but although shown here only in 20 suggests the migratory instincts of birds, fishes, animals, nomadic races, the spring fever so common among northern races after their long winter mentioned by Holmgren, *scholares vagantes*, tramps, explorers, globe trotters, etc. The primitive eye, ear and nose are organs of orientation to direct movement. The motor powers which selection develops are intense and sustained before they become manifold. The sensations of active and especially of passive motion are so exquisite, the experiences of travel so absorbing, and the new modes of transportation have so increased man's range and changed his habits, that although observation shows that the natural configurations of rolling ground and salient landmarks are among the earliest and most persistent of all the forms of memory, to part with them forever now rarely causes the phenomena of homesickness. On sea, desert and prairie, the "loved spots which our infancy knew" lack characteristics, and hence have little anchoring power. Cases 13 and 14, are vastations of this fear of getting lost to cosmic dimensions. Even to know in what direction the solar system is moving may mitigate cosmic dizziness as a map steadies 21, or knowing the points of compass, 8, 9 and 10. Hard as it is for children to tell p from q, few confuse p and b, so people may find it hard to tell right from left, walk in a circle, etc., and because there is no magnetic sense for north, the mortal dangers of getting lost in a primitive, gregarious life must have been vivid and prompted to a careful study of all landmarks, and, especially on plains, of the heavens. That some of the common phenomena of orientation among children have philogenetic elements, due to such ancestral experiences, I think probable. Animal life must act, but to do so it must distinguish front and back, the directions toward and from which action tends, must have more and more fixed localization to act from and on, must push out, away, and on, but later wants anchorage, and so acquires a persistent thought of return. This kind of orientation must also be a very primitive factor in the development of space feelings.

### III.

#### FEAR OF CLOSENESS.

1. M., 14. I have always had the horrors if a blanket got over my head, or I was shut in a dark closet.
2. F., 19. The least sense of confinement is stifling.



3. *M.*, 28. Cannot endure a closed carriage; it is not the riding, but the being shut up.

4. *M.*, 18. Has such horror of being smothered that if, in a boyish scuffle, his head gets in chancery, or he gets sat upon, he has a panic and yells murder.

5. *F.*, 18. Often dreams of being shut up, makes a great struggle, but can never throw off the impression until she sees a bright light.

6. *F.*, 36. Hates all small rooms; must have windows if not doors open; can never enter a room if the key is on the outside; if she does so must make great effort to breathe.

7. *F.*, 18. Hates caves, ravines, gorges and all narrow places, and is oppressed in every forest so that she cannot draw a long breath.

8. *F.*, 20. Has these symptoms if she sits near a corner, of which she has a great horror.

9. *F.*, 43. Sometimes when shut in a room I suddenly feel the door is locked; I feel my breath leaving me; it is the same feeling I once had when suffering with sore eyes; I would sometimes awake and find them stuck together, and I would leap up in a great panic.

10. *M.*, 16, colored. Most of all fears to be shut in; if a door must be locked he must be the one to lock it; "I still feel the same sensations about everything that limits my freedom, and want to shout, like Patrick Henry, 'Give me liberty or give me death.'"

11. *F.*, 20. Can never close a strange door behind her, but will stand and hold or prop it open on some pretext; ascribed to being shut in a barn, aged 11.

12. *M.* A boy was shut in a trunk in play, and when his mates refused to let him out lost his head with panic, grew desperate, screamed, "I shall die," and ever since dreads all narrow places, lest they should crush him, and is haunted by the fear of being buried alive.

13. *F.*, 26. Every heavy fog oppresses; she fears it will settle closer and nearer and choke her, but if in the house does not have this fear.

14. *M.*, 16. Expects to die by being choked with gas, and goes all around every night to see if it is off.

15. *F.*, 15. When three, first noticed mist, and was terrified, thinking it a veil God had spread on the earth that would never lift.

16. *F.*, 18. Thinks the sky falling when there is a mist; cannot breathe, and has nausea.

17. *F.*, 17. When awakened before daylight feared the sun would not rise, and prayed and cried she must have light.

18. *F.*, 20. Cannot see anything snake-like without the thought of slimy coils about her neck, squirming and choking.

19. *F.*, 11. Gypsies are worst, for they put plasters on your mouth so you cannot holler or breathe.

20. *F.*, 17. Has long dreaded warm weather, for fear of suffocation, and every thought of death suggests strangulation.

21. *M.*, 16. Suffers intensely from the fear of being buried alive, and writes accounts he has collected of the horrid distortions of bodies later dug up that came to life.

22. *F.*, 20. Very often dreams of being shut in a coffin and breaks out in a cold sweat.

23. *F.*, 21. Once had a trance in measles, heard all that was said, but could not move; was for years haunted with the fear of being buried alive, but cured it by the thought that God who cured that spell would not let her die in another.

24. *F.*, 18. Although in good health wrote out directions that her body should not be cremated, but that a bell should be fastened to her hand.

25. *M.*, 18. Wanted a tube so that he could speak and breathe.

26. *M.*, 16. Wanted his coffin padded on the bottom, with plenty of room, and holes for air.

27. *M.* Another wanted his tools buried with him to get out with; another food and drink.

28. *M.*, 42. Has always had such dread of smothering that he cannot sleep in the coldest weather without windows wide open.

29. *F.*, 27. Cannot hear or even read such words as suffocation, strangling, hanging, etc., without nervous symptoms, and sometimes has them at such words as oppression, confinement, tyranny, constraint, and occasionally is overcome by them when night is settling down.

30. *F.*, 18. A bad or even any very strong odor makes her feel close, smothery and hot.

31. *F.*, 12. Hardly likes to wear a ring, and will not unless it is very loose; if it sticks the least bit in getting it off she is in a panic; she cannot have a medal hung around her neck.

Hunger for breath, which starts with the first filling of the lungs after birth, demands room for air, and restriction causes incipient asphyxia. Slight dyspnoea predisposes to claustrophobic states of consciousness, although any association of apnoea and its attendant oversaturation of the blood by oxygen with agoraphobic symptoms by no means follows. In all these deep lying analogies of sensation, which seem better illustrated in sleep than in waking, although with laws common to both, the state of blood, lungs or heart seems to suggest the concept more often in dreams, and the converse to be more characteristic of waking. Breathing is a specialized form of skin respiration, and it takes longer to strangle young than adult animals, as is probably also the case with man. Some children habitually sleep in closed rooms, with the head under heavy clothing from darkness fears, to the detriment of health, while the fears of this section may have an opposite effect, 1, 28. Actual experiences bring out this acute panic in all its terrible intensity, 4, 10, 11. Sthenic smother effects and even globus may be caused by closed carriages, small rooms, or even shut or fastened doors, 3, 6, 9, 11. A valley, 7; corner, 8; fog, 13; mist, 15; warm weather, 20, may arouse it, and so may dreams, 5, 22; darkness, 17, 29; a snake, 18; gypsies, 19; an odor, 30;

imagined burial, 24, 25, 26, 27,<sup>1</sup> and even words suggesting restraint, 29. That a boy's struggle to get his head out of chancery should make liberty more real, 10, or that the thought of tyranny may cause stifling, 29, shows the immense range and power of symbolism and how our highest ethical aspirations are those that strike their roots deepest down to sensations perhaps more primitive and basal than anything else modern psychology studies. The impulse of prisoners long confined to "break out" and smash things or their own heads and fists, the vagaries of some ventilation cranks the psychic tortures of being compelled to sit long, love of tents instead of walls, mountain fever and its inspiration, and some of the associations of altitude with vast psychic range in I, also belong here. If we could stand a man safely based on a high pillar and gradually shut up his horizon around him like a closing umbrella till he was in a pit, and measure at what point claustrophobic symptoms were felt, and then reversing the movement let his horizon sink until he was left on a pinnacle, noting the agoraphobic symptoms passing to fear of heights, we could measure interesting and doubtless new psychological relations. Sully Prudhomme wished the world was not round, but stretched out infinitely and continuously with sky and stars; its limitations he found oppressive.

In the three groups above I, II and III, we may have important factors of space perception. The sensation of falling and gravity fears hardly suggests primitive aquatic life as hovering and floating, always associated with modifications of respiration, may do. We have no desire to speculate concerning the relative age of these two groups of sensations. Horizontal length and breadth orientation may begin with the distinctions between head and tail directions as cephalization and forward motion increased, and then between front and back after the erect position had been assumed. After this latter change, it became almost as much easier to get turned around as it did to fall, so that horizontal orientation was far harder. We require many times the cubic contents of the body in air for respiration hourly, and this, like each of the above elements, may have been a factor in the very early development of the spatial quale. That they are demonstrably *a priori* to the space of sight, or even touch, is not claimed. Class II may have been coeval with active motor feelings, but the Silurian fucoids do not more completely defy analysis or definition. Touch, motor sensa-

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<sup>1</sup> See cases and remarks on this fear in Colin Scott's "Children's Ideas of Death," AM. JOUR. PSYCHOL., Vol. VII, No. 1, p. 67 *et seq.*

tions<sup>1</sup>, semi-circular canals have specialized these functions; sight and the increasing predominance of eye-mindedness has re-edited them with vastly larger interpretations, but the ultimate root, the *quale*, the *ding an sich* of space perception, if we can ever decompose it into ulterior elements, may be found to include these factors, contributed in the earlier days of animal life by those stern but venerable pedagogues, who still teach man his surest and most abiding knowledge—fear and pain. If so, then Berkeley, Kant and modern epistemology must make room for genetic factors of space perception not hitherto considered, which open up the problem to larger and less formal treatment.

## IV.

## FEAR OF WATER.

This fear in some unreasonable form is almost universal at some stage of childhood, when it is almost sure to be found if questioned for. It has many forms.

1. *F.*, 19. "To be washed always made me stiffen out, my eyes bulge, and I was almost convulsed with fear."

2. *F.*, 17. Had intense fear of water till eleven; when bathed would scream with fear, and was almost convulsed.

3. *F.* A girl had horror of being washed almost from birth till three or four; the sight of warm bath water made her kick and scream as if in agony; at one time it was thought to be hatefulness; she began to enjoy dabbling and was not afraid of a pond near by.

4. One mother found it best to cover the water in a blanket and upon it lower the child gently, to avoid this terror.

5. Another gradually broke it by playing peek-a-boo with two boys with a wet towel, occasionally touching them more and more, diverting with stories, etc., till the fear was gradually overcome.

6. *F.*, 16. Says, "How I dreaded water; I would dip the tips of my fingers, touch each cheek, and then considered my morning ablution done; it was partly dread of cold, but partly of wet."

7. *F.*, 28. Had for years a sense of great relief when a bath was over, fearing God might somehow strike her dead in it, like a case she had heard of.

8. *M.*, 7. Could never be induced to paddle on the beach or even in a small brook, but said his feet were tender, when the real reason was clearly fear.

9. *F.*, 17. Till nine could never pass a stream of water ever so small even in the cars without closing her eyes and turning her head.

10. *M.* A boy of two would always cry and scream whenever he heard water poured in a dish or the noise of a stream.

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<sup>1</sup> See "The Muscular Perception of Space" in my Aspects of German culture, from p. 225 on.

11. *F.* For years a girl of six had such horror of water that she had to cross all streams in the middle of the bridge lest something should come out of the water and drag her into it, and at fourteen had something of the same fear.

12. *F.*, 20. Had an overpowering and sudden fear with a sense of choking on first attempting to go into salt water.

13. *F.*, 19. Had a horror of touching water till once forcibly plunged in, when it began to develop a great charm for her.

14. *M.* A boy never dreaded it till a man took him in bathing, aged five; since then it has a nervous terror for him.

15. *M.*, 16. Was ducked all over under when eight; has never dared to go in swimming since, and hates the sight of water.

16. *M.* Four boys describe long horror of putting face or head under the water; two are good swimmers, but never ducked the head.

17. *M.*, 11. "If it rains when I am in a boat, I have the horrors."

18. *F.*, 17. Although much in a boat is always haunted by the fear that the bottom will fall out, but can give no cause.

19. *F.*, 16. Daily crosses the ferry, but can never keep her eyes off the life-preservers, and is always planning what to do if the boat sinks.

20. *M.* A young Englishman, if boating near a large vessel at anchor, or a quay in deep, glassy water, feels an irresistible drawing force, or falls under the spell of being pushed to the bottom.

21. *F.*, 18. On small bodies of still, dark fresh water has a strange sensation of depth and lack of her own buoyancy.

22. *F.* An English woman enjoys bathing while the sun shines, but if a cloud darkens the sky and water, is seized with a panic; she used to scream, but now if alone cannot stand by a still lake or river or the sea in a dead calm without feeling that she must do one of two things, throw herself in or hasten away; sometimes she loses the power to move; water in motion causes no fear.

23. *F.*, 15. If goes near falls or a rapid stream, she feels a compulsion to go along with the water.

24. *F.*, 26. When it rained hard and streams were high, feared one after another of her friends would be drowned.

25. *F.* A lady teacher dreads all bridges, especially if she can see the water; sometimes she is powerless to go forward or back.

26. *F.*, 24. "My brother is a sailor, and I cannot bear to see or think of a rough sea."

27. *F.* Five girls report horror of hard rain, lest there come a general flood.

28. *F.*, 18. Was in bathing and suddenly exhorted her companions to walk into the water and end it, "so we won't know any more."

29. *F.*, 18. Cannot look down upon water without an imperative impulse to plunge in, although she cannot swim.

30. *F.*, 15. Does not trust herself to gaze into deep water, because it seems so cool and quiet down there it draws me.

31. Several describe the charm of slowly sinking, floating or lying in the bottom of ponds or seas.

32. The noise of the wind suggests to many the sea, sometimes sea-sickness, sometimes visual images, or some mood of the sea corresponding to or changing with the wind.

33. *F.*, 14. Was for days and nights haunted with the sight of an aquarium, which gave her nightmares and sensations of drowning.

34. *F.*, 7. So feared the ocean after her first sight of it that she must always be assured that her bath was not sea water.

35. *M.*, 32. "My boy of six in bathing fell in eighteen inches of water; instead of making the least effort to get up he lay there helplessly rolling, and was nearly drowned before I could get to him; he seemed to have easily and at once resigned himself, and showed no fear even afterwards."

36. Some children take pleasure in imagining themselves drowning; some of them dream it out; in both cases there may be sensations of choking.

37. Others picture the sea as full of beautiful and precious things or beings which they long to see, such as corals, jeweled caves, nymphs, while to others there are unreasonable fears of all conceivable monsters.

38. *M.*, 16. Could never put his head under at the seashore without a horrible feeling that he was bidding farewell to land and entering a new element that was "just the same all round the world and held all kinds of things."

39. *M.*, 28. A well experienced swimmer could never go under an instant without a sudden and absurd fear that sharks or other monsters were on the point of seizing him.

40. *M.*, 22. Never swims beyond his depth lest he should be drawn under, or have a sudden impulse to go down forever.

41. *F.*, 43. Fancies she has sensations of drowning in a very hard rain, and sometimes in a thick fog.

42. *F.*, 21. Thinks drowning by far the best way to die, and sometimes is so enamored with the thought of quietly sinking into unknown depths and leaving care and pain that she almost resolves to try it.

43. *F.* For an English lady drowning always had a poetic charm; she often pictured herself a corpse floating easily about or drifting upon the shore in artistic places and attitudes, yet always had a horror of bathing except in the tub.

44. *F.*, 20. Always felt she was destined to die by drowning; shunned every possibility of this end and imagined its symptoms.

45. *M.* Two boys could not skate where water was known to be deep, no matter how many others were there; indeed the more, the greater the danger of a general break-in.

46. *F.* A lady writes that her boy of 16, otherwise normal, has micturition, which is associated with such fear that he dreads to urinate, and even to drink water.

47. *F.*, 32. Felt the sea to be a cold, cruel and almost omnipotent but malignant giant.

In many cases of young children's dread of water, it is simply because it is cold. This was perhaps the case with 1, 2 and 6 and others. To this their skin is exceedingly sensitive, and lack of temperature adjustment either way may easily cause not only discomfort, but pain, and so fear. This, however, can scarcely account for 3, 4, 5, and most of the other cases must have other elements. Association with accidents



or with creatures supposed to live in water appears in 7, 11, 14, 15, 26, 32, 33, perhaps 45, and very likely others where the record does not show it. Eliminating, however, all that can be due to these two causes, cases like 8, 9, 12, 13, as they stand, are less clear, and those like 16, 17, 18, 19, suggest other elements, while the "drawing" factor in 20, 21, 22, 23, 29, 30, 31, 40, suggests the doctrine of imperative ideas, which here, however, as so often, needs more explanation than it gives. Still other elements appear in 28, 35, 42, 43. The smother factor, one of the deepest roots of horror, here, too, is often a form of physiological resonance which rain, clouds, or even fog may evoke, or indeed dampness in the air. The specific gravity of water takes the jerkiness out of the movements and tends to slow down or rest all but passive motions, and in states of heat and fatigue its coolness and softness have great charm. Drowning has always been a favorite form of suicide, especially for women. Prose and poetry have described both these fascinations, and peopled sea and stream with mythic creatures, both captivating and terrifying.

Deducting all fairly due to individual experience, is there in these phobophillic feelings toward water any hereditary, race remnant? This question is both as inevitable and as unanswerable here as is the problem of innateness versus empiricism in other fields. The data are certainly unsatisfactory, although full of suggestiveness. For one I incline to the view that it would be well for psychologists to postulate purely instinctive vestiges, which originated somewhere since the time when our remote ancestors left the sea, ceased to be amphibious and made the land their home. Do we not dishonor the soul by thinking it less complex or less freighted with mementoes of its earlier stages of development than the body which, in the amniotic fluid medium, unfolds its earlier prenatal stages like a fish, and carries traces of the primitive gill-slits through adult life? As these latter traces are sometimes hypertrophied in teratological forms, so the old charm and the old fear of water may come to the very foreground of consciousness in exceptional cases. It is at any rate conceivable that the influence of the predominant proportion of time and of volume of life that has been lived aquatically since its dawn should still make itself felt in the soul, and should find expression especially in poetry, both more emotional and more archaic than prose, in the faint traces of struggle between fear and love occasionally seen here. Sometime, perhaps in the Permian age of the great amphibia, or at any rate between Devonian and carboniferous age of fishes and the gigantic reptiles of the triassic and jura, and thus at



any rate very long after the chief features of the vertebrate type were established, the modes of movement, breathing, feeding and the senses of equilibrium, orientation, the action of all the special senses, etc., were more or less radically changed. But why should the older and deeper types of psychic activity be assumed to have had a reconstruction any more obliterative of the past than the body?

The simplest of all hypotheses, and therefore the view that may fairly claim that the burden of proof should rest with any other less ultimate one, seems to me something as follows: Deepest of all the feelings for water is the old love, traces of which still survive and crop out in some features of its charm and drawing power, when it seems so cool, soft, restful, buoyant, embracing and transparent. Returns to another syllabus will show what an unaccountable passion it is for children to see, feel, paddle in, play with or sail on water. The force and depth of this passion, after eliminating all influences in this direction due to the experience of the individual child, and others of recent philogenic origin, strongly suggest the earlier and far longer life in the sea. Later, after land developed to continental dimensions, and amphibian habits gave way to conditions that established life permanently on land, the higher animals swam less and less, and at length water became dangerous in proportion to this loss of power. Those best adapted to land were at greatest disadvantage in water, and thus a fear of it became chronic and very strong because it must control the old love. Those that feared water most had an advantage in survival at a certain stage over those less timid. How severe this discipline of weaning from the old home of all life, some childish fears like these above still show. The thought of return to the old element is sometimes suddenly reinforced to the intensity of an imperative and uncontrollable impulse by the recrudescence of the archaic element, like an eruption forcing through in dyke or fissure where the superposed strata are thin or not conformable. Female suicides prefer drowning as a mode of death more often than men, because the female organization is more conservative of archaic influences than the male; the old love is stronger relatively to the old fear in them. But thirdly, in all normal souls the two are adjusted harmoniously, so that all the pleasure of the one and all the safety of the other are combined—the fear and danger now adding a new charm.

It should perhaps be added here that hydrophobia seems likely to be dropped from modern medical literature as the designation of a central feature of a symptom group. Real fear of water as such, as distinct from fear of other bright things or more solid ingesta, probably does not exist except

in hysterical and pseudo-cases. Rabies, with dryness and constriction of the throat and difficulty of deglutition, whether an imaginary or infectious disease, has perhaps no connection with this theme.

## V.

## FEARS OF WIND.

1. *M.*, 1 year, 8 months. Every time the wind whistled or made any kind of noise would run to his mother's lap.

2. *F.*, 2. Is always strangely excited when the wind blows; wants to cuddle away and be quiet somewhere.

3. *M.*, 16. During all my childhood nothing frightened me like wind; to subdue me they only needed to say the word.

4. *F.*, 18. When the wind moaned I always said to myself it is like a mother weeping for her dead baby.

5. *F.*, 19. Has always been distressed and depressed by every sound of wind or rustling of leaves.

6. *F.*, 40. The wind at night always seemed like dogs growling, and she would lie awake fancying them outside.

7. *F.*, 22. "To be out in a violent wind only makes me cross and very irritable, but its howling, especially at night, has always been extremely depressing; I have no definite fear, but it brings to mind many possible and impossible disasters, and makes me sad and blue."

8. *F.*, 28. Is nervous and restless whenever she hears the wind in the trees; "it requires all my will power to make myself sit still and continue my work instead of roaming around the house like a restless spirit; any kind of storms without wind do not trouble me."

9. *F.*, 17. Always dreaded wind, but trembles less than formerly. "Never fail to awake at night if it increases; I cannot lie still; wring my hands; run to another room and pace the floor until the wind has ceased."

10. *F.* A high wind makes a refined lady feel herself at sea; makes her feel the rocking motion of the waves and causes nausea.

11. *F.*, 17. "The least wind terrifies me lest trees or limbs should fall, if I am out I keep the exact middle of the road, or, if possible, with blue sky above me."

12. *F.*, 19. Heard her mother say as a shower was coming up, "We shall have a gust of wind;" she had never heard the word gust before, and it long filled her with terror, and was associated with wind.

13. *F.*, 43. "As a girl I was always unhappy in exact proportion to the strength of the wind, and used to watch the movements of the boughs of the trees to estimate its intensity; a sudden or even gradual crescendo in the noise of the leaves still starts up my heart; I feared every light breeze would increase into a gale; every morning on waking my first thought is of the wind, and I often compare its intensity hour by hour; I have never experienced any really dangerous wind."

14. *F.*, 24. Has great horror of wind, and studies the clouds incessantly to infer their direction and intensity.

15. *F.*, 4. Fears the wind will blow her or her friends away.

16. *M.*, 46. Distant machinery, cars, thunder, surf or deep organ notes sometimes suddenly suggest wind of awful power that could sweep sea, land, and earth itself away; some of the "elemental motives" in Wagner's *Trilogy* are intolerably tragic.

17. *F.*, 20. It is the piping and whistling of the wind that give her the fidgets, and sometimes she fancies it is a monster breathing.

18. *F.*, 17. Used to think armies were fighting when there was a gale.

19. *M.*, 28. Sometimes fears the earth may be swept clean, and even that the ultimate forces of nature may break out and everything be reduced to chaos.

20. *M.*, 9. Wind was God's wrath; the harder it blew the more angry He was.

21. *F.*, 18. Used to feel there were wild men in the wind screaming to each other, or a lot of elves frolicking or playing hide-and-seek.

22. *F.*, 18. Used often to fancy she heard the wind say such words as: I am coming; I will push you over, etc.

Often, as in other of our returns not included above, this fear is directly caused by experiencing, seeing or reading of the havoc of high winds, gales at sea, etc., and much is due to the close association with storm and thunder. Noise has wonderful power over the emotions of childhood, especially during all the plastic inceptive stages of language, and creates all kinds of scenes and imagery on the principle illustrated in descriptive programme music. The wind starts up, rattling, roaring, sighing, all kinds of sounds suggesting animals, 6; monsters, 17; enginery, 16; battles, 18; the sea in all its moods, 10; pathetic scenes, 4; universal dissolution, 19. It is the bandmaster of the many membered orchestra of nature's music, and can play upon almost the whole gamut of our emotional life. The pan pipe of its *Æolian* whistling needed only to be fretted with scale and tonality to create music, the power to compose and appreciate which it had done so much to make. Yet with all its power it is invisible. More perhaps than any or all things else, it created in primitive consciousness the unseen spiritual world. Where things transcendent would have been but for the wind, the etymology of words like spirit, soul, thought, mind, etc., in many languages savage and civilized suggests. It is the child's first and chief teacher in that school where all the causes that are real enough to bring heat, cold, sunshine, cloud, rain, destruction, change of mood, as if by a new indwelling personality, and which no eye yet ever saw, are learned. Its changes are incessant in intensity and direction, follow no known law, yet are as close to us as our own pulses, and as in nervous

states we listen intent on its "what next," our very breath is bated as if even its coming and going was in the power of this mysterious agent. Living at the bottom of a great sea of air, the changing pressure of which affected their blood and muscle tension, and even knee-jerk, it is no wonder that primitive men did not know there was such a thing as air itself when still, although personifying wind in many forms. We may fancy, if we like, that on some such theory as, *e. g.*, Mach's of hereditary, or a form of memory by direct continuity of molecular vibration in cells or their elements (Weissmann's biophors, Wisner's plasomes, de Vries' pangens, Nägeli's micellæ, etc.), or in any other less material way the present reactions of childish and adolescent souls, or of specially sensitized geniuses, or neurotics, still bear some trace or scar of the more dreadful storms of the long age of diluvial man or even of the older sea, which still make our souls better resonators to bring out some of the wind effects in the above cases, provided we never for a moment forget that seven logical proofs are made of radically different stuff. All that anyone can claim is that we have here new points of view, with an interest and suggestiveness all their own, the stimulus of which, whatever it is, we ought to utilize to the utmost in studying these groups of ancient, all-conditioning, but in adult life mostly effaced and heretofore strangely neglected experiences. Anemophobiac souls are Æolus caves, from which imaginary winds that threaten to sweep away earth, sea and heavens may still be loosed.

## VI.

### FEARS OF CELESTIAL OBJECTS.

In this section I have selected only a very few typical fear cases from over a thousand returns illustrating the feelings of children toward sky, cloud, heavenly bodies, weather, etc., as follows:

1. F., 17. When 12 saw a picture of a fierce clown between the clouds; often imagined she saw him afterwards in the sky, and could even trace his outlines in the stars, was greatly terrified, but never told.
2. F., 16. Always shudders when looking at clouds; she used to trace outlines of terrible monsters, has still the same feeling even when looking at pictures of clouds; another used often to run in from play in terror from cloud-shapes; she would watch their changing forms with breathless fear.
3. F., 19. Used to trace each of the following animals in cloud-forms, cows, dogs, horses, reindeers, cats, rats, pigs, goats, lions, camels, etc., when she was 9; she fancied great animals were somehow up there, and often had shudders of fear; this interest made the scientific study of cloud forms a fascination later.

4. *F.*, 16. Has not yet got over strong fear that heavy, low hanging clouds will fall; she used to think some of them beasts of prey and mythological monsters.

5. *F.*, 18. Had a horror of clouds that were stacked or piled, one above another; if they were black she feared they would burst and spread destruction; she could never endure clouds directly overhead.

6. *F.*, 27. If clouds were low felt smothery.

7. *F.*, 19. Long thought clouds took the form of coming events, one, *e. g.*, looked like a volcano, and for days she expected one would burst forth from a certain hill near by.

8. *M.*, 5. Is frightened at every little cloud; he always watches the sky, and if he sees one coming over runs in.

9. *F.*, 22. I dreaded sharply formed clouds, for I supposed if they burst it would rain fire.

10. *F.*, 17. Was for some years always on the lookout for funny shaped little clouds; any jag downward she thought a cyclone.

11. *F.*, 5. For months had a horror of clouds, and was haunted with the fear of rain drops; when they fell she was always gloomy and in terror.

12. *F.*, 7. Had heard of the flood, and if it rained hard on the second day would cry and fear the world would be drowned.

13. *F.*, 18. Once saw the crucifixion scene in the clouds.

14. *F.*, 21. Used to see angels and chariots, groups of heavenly beings.

15. *F.*, 23. Used to see the face of her dead mother shaped in a cloud.

16. *F.*, 26. Used to see the scenes of nearly all the stories she read pictured in the clouds, especially if they were terrible.

17. *F.*, 17. Used to be greatly elated by bright cloud colors, and filled with awe if they were gloomy or sad colored.

18. *F.*, 8. Used to see all the Bible pictures in the clouds, and thought the pretty ones God's clothes.

19. *F.*, 19. Clouds always suggested the next world, she thought them very near it.

20. *F.*, 22. Used to think the motion of the trees made the wind, and the wind herded the clouds like a shepherd.

21. *M.*, 11. Anything unusual in the clouds made him fear the end of the world; it was a Bible "sign."

22. *F.* A lady recalls a cloud she thought a mythological monster, and another she thought the head of satan, and has had several other experiences with individual clouds which she will never forget.

23. *F.*, 18. Often used to see mountains, sea and landscapes in the clouds, but they seemed uncanny, and the scenes of dire events.

24. *F.*, 16. Used to get dizzy and nauseated watching the moon running under the clouds.

25. *F.*, 21. Long had great fear of heavenly bodies, yet was fascinated by them; would gaze long at the stars, "I would overwhelmingly realize my own insignificance and the power of God; I would want to pray to be better, but felt myself of too little consequence to be noticed; star gazing has improved my behavior."

26. *M.*, 23. "Had mental terror of a yellow sky, clouds or light; red in the heavens suggests blood and something terrible to come; a college professor, as a child, had horror of red sunsets, "the sun seemed coming down to the earth to set it on fire."

27. *F.*, 21. On hearing of the planets and their paths, developed a chronic panic that they might get off their tracks and hit each other, especially that the earth would run into the sun; "it made me a better girl."

28. *F.* A high school teacher never feared celestial phenomena except northern lights, these still give her an indefinable feeling of horror, and she never sees them without shivering and shaking.

29. *F.*, 9. Once ran away and was taken home at night by one who showed her shooting stars; she thought they jumped from their places because she had been bad, thought if she did not behave stars would fall, felt very guilty, and when she saw a star fall wondered whether she had been bad, or who.

30. *F.*, 17. Says both she and her friends dreaded meteors, fearing one might fall on the house, a comet was worse yet; it always seemed to be making straight for the earth to brush us all off with its tail.

31. Till 6 *F.* connected meteors and eclipses with fireworks and both with the end of the world.

32. *M.*, 4. Watched an eclipse, and as the moon grew dark cried with terror and could not look again.

33. *F.*, 7. Cried with alarm thinking some one had blown out the sun.

34. *F.*, 18. Hearing much of an eclipse feared the sun and moon would hit each other, be knocked out of socket and so destroy the world; all the while she expected to see a big ball of fire fall, and was studying where to get so it would not fall on her.

35. *M.*, 18. At 3 had great terror of the full moon, and would always run and yell to get away from it.

36. *F.*, 4. Fears the moon and always thinks it is after her.

37. *F.*, 16. Loved to watch the moon, but could never do so alone, fearing the real man there might come down and carry her off; she still has this fear.

38. *F.*, 30. While hearing stories on the verandah one night as a girl, saw the moon break out and suddenly tint everything with silver; this, she thought, is the end of the world, even yet she cannot see the moon break through a rift in the clouds without some fear.

39. *F.*, 20. From about 7 to 9 feared the moon would fall and kill everybody; watched it nightly to see if it looked bigger or nearer, would not sleep on her back lest it would fall on her face and crush her; prayed to be at home if the end of all things came, and hoped that when people should cry to the rocks and hills to fall on them she might be lucky enough to find a crevice so they would not crush her.

40. *M.* A young man had great fear as a child that Orion, the crab, and other monsters among the constellations would descend to earth.

41. *F.*, 10. Was looking at the moon and thought it smiled at her, and ran in terrified.

42. *F.*, 8. Thought the moon sometimes looked pale and sank into the sky, and might go out.



43. *F.*, 22. Used to be terrified and sometimes angry because the moon always followed and spied on her.

44. *M.*, 18. Used to when small have panics at his own shadow, tried to run away from it, stamp on it, and thought it might be his soul.

45. Two children thought rain was the tears of celestial beings because they were bad and feared punishment.

46. *F.*, 19. When small had horror of red sunsets, which she thought would set the world on fire, and feared to go on the hills lest she should fall off the earth.

47. *F.*, 26. Once had great terror of ice, frost, and especially snow, thinking the earth would be buried and everybody frozen.

48. *F.*, 16. Used to have a great horror of twilight, which was the time she thought when ghosts and witches came forth and spells were wrought.

49. *M.*, 12. Had persistent fear of meteors, of falling stars, which he connected with the end of the world.

50. *F.*, 17. The most "shuddery" thing in all the world is the northern lights, they seem to go through her so.

51. *F.*, 13. Dreaded, awful messengers from heaven or distant planets.

52. Very warm weather suggests to *F.* 19 that the elements may melt with fervent heat.

Here again we find many falling fears. Sky, clouds, sun, moon, rainbow, meteors, comets, balls of fire, the man in the moon, the monsters of the constellations may drop on us, knock things off the earth or crush it, 4, 5, 29, 30, 34, 37, 39, 40, 41, 49; there may be collisions, 27, 34; or explosions, 5, 9; heavenly visitors, guests from other planets, 51; cloud monsters or demons, 1, 2, 22, 40; or beasts of prey may arrive. The future is revealed, 7, 26; the terrors of the judgment or the next world are foreshown, 19, 21, 31, 49; cyclones are imagined, 10; the northern lights strike terror, 28, 50; cold weather or snow suggest the freezing up or snowing under of all things, 47;<sup>1</sup> heat, that all things will dry up or melt, 52; rain, that floods impend, 12, or yet more superstitious terrors, 11, 45; Bible scenes are reproduced in the clouds, 13, 14, 18, 22; the sun, 33, 34, 27, 26, 25; the moon, 32, 34, 35, 36, 37, 38, 39, 41, 42, 43; shadows, 44; bright colors, 17, 26, 46; twilight, 48; to-day nothing of wind and thunder treated elsewhere, become objects of special fear.

We know too little of the effects of weather upon psychic states.<sup>2</sup> Each season predisposes to certain diseases, and even to its own immoralities, and has a strong effect on recurrent and circular forms of mental alienation. Bad

<sup>1</sup> See "Zan Zoo," *Harper's Mag.*, Aug., 1891, Vol. 83, pp. 345-355.

<sup>2</sup> Cf. J. S. Lemon, "Psychic Effects of the Weather," *AM. JOUR. OF PSYCHOL.*, Vol. VI, p. 277, *et seq.*



weather increases suicides and accidents and lessens factory productivity sometimes as much as ten per cent. Good weather increases muscular and arterial tonicity and facilitates digestion. Hot and cold, wet and dry, dark and light, and perhaps electrical tension play upon moods, affect studies and discipline in school, trade and business enterprise, control agriculture and many industries, modify the conduct of animals till its variations are utilized as weather signs, is the first topic of conversation among all races, and so great is human interest in it that a body of weather lore has been developed the comparison of which with modern meteorology affords one of the most instructive of all the many parallels between folk-lore and science. Many hymns, from the *Dies Irae* down show how commonly divine wrath, and even the terrors of the judgment are conceived and described as simply awful weather. The last revision of the Episcopal prayer book contains weather prayers. Children's souls still show abundant traces of the original psychoplasma out of which primitive man created the many fairy or demoniac beings seen in cloud, fog and all the phenomena of day and night. Earth is fixed and solid, but the heavens are a theatre of incessant changes, controlled by no known law, and which seem the direct expressions of the feelings of personal beings toward man. Just as in antiquity and down to Columbus it was a very common view, that by persistent sailing or traveling men could reach the sky and heavenly bodies which were connected with the earth, as then known, by direct physical continuity, so to many a child not only is this true, but hell is hot weather intensified to a fiery stage, and heaven is people unusually fine and events unusually magnificent, set in sunset hues and skyey brightness increased, and all reached by climbing sacred mountains, real or imaginary. Now, no state even remotely like this, has prevailed since the nebulous age, when the whole solar system was simply cosmic weather. But extremes from the laval heat to the cold of the glacial period, the storms and floods of cataclysmal force that have prevailed since the Silurian age, when life became well established here, and especially those convulsions which broke the continuity of the successive geologic periods, lethal elements that have entered so densely into the composition of the atmosphere, floods of subsidence and emergence, thunder, wind and storms of inconceivable violence,—all these toned down to a mildness that makes present conditions of life possible, fixed in bounds by fate constitute what we now call weather.

Hence from the standpoint of the new conceptions of soul that now seem imminent it appears to me not surpris-

ing, but rather in accord with hypotheses, we must assume, formulate and test that in this class of childish fears we still have echoes of the grander and more awful phenomena of primæval weather, when even clouds were denser, and which perhaps first suggested such old traditions as the firmament of Genesis, the upper earth of Plato and Dante and many others reminiscent of a time when all present changes had a far wider range. If we knew the whole history of weather it might appear that some children and adults who suffer from these fears, illustrate stages of arrest in the development of inhibitory powers which reveal psycho-neural elements older and less controlled within bounds than our present meteorological variations. To such individuals no bows of promise give surcease of dread "Elemental" music like some of Wagner's, seems to work by waking and stirring these old echoes, which motives like *e. g.*, the pastoral symphony allay.

Far above the realm of flux in our atmosphere is the heaven of blue sky, of fixed eternal stars, and of the pilgrim sun and moon in the divinity of which Socrates in the *Apology* intimates that all wise men must believe, and to which, as a later paper will show so many Christian children still pray. Here for unknown generations men have read their fate as astrologists still do. Assuming that every plant had its planet and each planet its plant, the doctrine of signatures at the hands of Cardanus and the herbalists still controls, or at least modifies the therapeutic ideas of the vast majority of mankind. The more we know of children's drawings<sup>1</sup> and conceptions of form the more inevitable we see for childish savage man was the development of constellations out of star-points, which like cloud forms have done so much to lay deep the conviction of a vast superstitious realm above, rank with life. The Müller-Cox idea of primitive Aryan man shut up in valleys by mountains he rarely crossed, with no political, industrial or other occupation for his thoughts, inevitably turning the freshest and most vigorous of minds to the celestial vault as the only field of change and interest with an eagerness and zest we cannot conceive, and evolving the roots of the myths of all Aryan races in the personification of dawn, storms, sunset, and describing in long epics, the prototypes of classic theology, the battle of day and night, the Hercules labors of the sun, his fight with cloud monsters, and the romances of the gentle moon, etc., finds some slight confirmation in the filmy *Anlage* shown in the above

<sup>1</sup> See "A Study of Children's Drawings in the Early Years," Herman T. Lukens, Ph. D., *Pedagogical Seminary*, Vol. IV, p. 79, *et seq.*

scattered illustrations of the fears and fancies of the children of to-day. Just as glacial action after making the landscapes and soils of the later quaternary age and leaving its mementoes in vast boulders and moraines has shrunk to the present polar ice-cap or retreated to high mountains where all its continent-shaping phenomena can still be observed on a small scale, so this, like other great primal psychisms, after shaping and basing man's deepest and all conditioning instincts, has slowly retreated toward ineffective infancy, where in rudimentary and transient forms we may still study these "vague snatches of Uranian antiphone."

The heavens are also the chief and best *tabula rasa* for the projection of all the entoptic phenomena of the primitive men once so vivid, that like those of the modern savage, they may be mistaken for objects of sense and the visions of ecstasies, the strongest of which do not need darkness. By far the most of the old deities and demons are powers of the air or sky where Jove ruled. Besides "above" is so vast and so open on all sides that, although the dangers are small from any one point or source, the possible ones from all are so many and the superstitions that literally stand over us have such advantage of position as well as locomotion, that all in all it is no wonder that astral fears seem hardly less deep seated than the foundations of the religious nature, are so easily aroused even to intensity, and are so manifold.

## VII.

### FEAR OF FIRE: PYROPHOBIA.

1. F., 16. I used to regard fire as a sort of demon, the flames being his tongues, which licked up everything within reach, and he seemed always trying to get more in his grasp.

2. M., 18. One of the grandest sights is a big fire; there is an awful feeling in seeing its power; I do not know whether I love or fear great conflagrations most.

3. M., 21. Is always awakened by fire bells, and can never sleep until the return is rung; all through his boyhood he was nervous, excited, and could not sit still at school if he could not run to every fire; "a fire is such a magnificent sight; I always secretly sympathized with the fire rather than with the firemen, and wanted it to blaze higher and spread; had it been my father's house I should have had an undertone of the same feeling, though I should, no doubt, have fought it with all my might; all this while I have grown almost morbidly cautious about sparks and matches."

4. F., 41. "I dread so many coming ills that I often used to ask myself, 'What is the good of living with such dreadful things liable to happen at any moment?' My chief dread is fire, due largely to experience; I so dread it that I cannot bear the thought of being cremated, although I know that is the best way, because I know my body would feel the fire though insensible to everything else;

when I read of people badly burned I imagine the pain and wonder how they can bear it."

5. *F.*, 18. With no fire experiences, for years had spells of lying awake and dreading it; her pet terror, which often got into her dreams, was being obliged to jump and feeling the awful sensation of falling.

6. *F.*, 18. Must always make a tour of the house to see if there is fire if she awakes at night.

7. *F.*, 17. The worst fear is that she will get her hair on fire; she cannot bear to see much less use a match, but can handle a lighted lamp.

8. *F.*, 15. Still takes her dolls to bed every night so as to rescue them if there should be a fire.

9. *F.*, 19. Could for years sleep little on windy nights for fear of fire, and often goes over the house, yet has always been strangely fascinated by fire, always watched it by the hour, feeding it as a child with many forbidden things.

10. *F.*, 18. Was always trying to regulate the drafts to fit the wind.

11. *F.*, 19. "The fear of fire preys upon my mind waking and in dreams; I always imagine I smell it, and am always expecting to see flames when I explore the house; black smoke from any chimney or any crackling sound makes me tremble."

12. *F.*, 17. "Just to hear the word fire sends chills all over her, her heart seems suddenly to stop."

13. *F.*, 16. "Near our house is a pile of combustibles that would make a bonfire such as would delight the wildest imagination; my impulse to touch it off is getting almost beyond control, yet I know our house would go too."

14. *F.*, 17. Feels lonesome and must be with somebody long after having heard of or seen a fire.

15. *F.*, 16. Long connected fire bells with the end of the world, which was to begin in a city fire.

16. *F.*, 17. Used to fear in hot days that the world would suddenly burn up; she was nervous to learn that the centre of the earth was on fire, and thought the sun would draw it out.

17. *F.*, 19. Used to fear a rain of fire whenever the sky grew red; so intense was this that the fear of thunder showers was overcome because she felt that the rain of water would cool off the earth and postpone the rain of fire.

18. *F.*, 14. Never sees the fire burn bright without dreading the chimney, and then the house will catch fire.

19. *F.*, 3. Is always terrified at the noise of lighting a match.

20. *F.*, 3. Often has convulsions when the kettle steams, fearing explosion.

21. *F.*, 5. Has a horror of flat irons, even when cold, although never burned.

22. *M.*, 16. "The terror of my boyhood was fire alarms; I often felt the wall to see if it was hot."

23. *F.*, 18. Used to have terrible dreams, and day fears when alone, of the terrible face, and especially the flaming sword of an angel pictured in the Bible as guarding Eden.

24. *M.*, 14. Feared to get overheated after reading of "spontaneous combustion."

25. *M.*, 45. When 13 was haunted for weeks by the line of a well known hymn, "and when a raging fever burns," etc., and felt many symptoms, and thought how dreadful hell fire must feel.

Only five of our cases report any actual experiences with conflagrations, being burned or knowing others to have been.

Mild pyro-phobia appears in the caution of 3 about sparks and matches, in tours of the house, 6, 9, 11; dread of every bright fire, 18; of the noise of lighting a match, 19, or the sight of it, 7; of the word fire, 12; the sound of crackling or the sight of smoke from a chimney is feared, and may even arouse the sense of smell, 11. This dread of loss by fire is offset by or struggles with the slight pyro-mania of 3, 13, and perhaps 2 and 9. Other fears may start by suggestion from the physical sensations of heat, 24, 25, 16, or imaginary burns, 4, 7, 21. It may be associated with wind, 9, 10; with dread of jumping and falling, 3; with hell and judgment, 23, 25; hot weather, 16; fire bells may announce the final conflagration of all things, 15; fire may rain from above, 17; or come up out of the fiery centre of the earth, 16; or even break forth from our own bodies, 24.

Unlike many land animals and amphibia man neither hibernates nor aestivates, and unlike so-called cold-blooded fishes, whose body temperature ranges through nearly as many degrees as separate the summer from the winter temperature of water, even the surface of man's body follows but very slightly the thermal changes of the atmosphere. Slight as are the normal changes of the temperature of human bodies, life in colder latitudes, clothing, indoor life and artificial heat have made it very sensitive independently of the hot and cold spots. But, as even these latter suggest, man's psychic states are profoundly modified by temperature. All human affection and ideals languish and almost die at 90° F., and as if thermal effects resisted by the body vented themselves upon the soul, not only love and temper, but will, fancy, morality and all the racial differences that separate arctic from equatorial man, so superficial in the *soma*, so deep in the psyche, can be in part measured by the annual average readings of the thermometer.

Since the culture heroes taught man the control of fire, cooking has not only established the hearth as the centre of domesticity, but enlarged man's dietary and economized digestive energy for other uses, and made metals plastic for the arts. Traces of the charm of these old associations are abundant in child-life, as other returns show. Just to idly gaze at fire now starts dreamy reveries, veined through which are traces of very primeval yet earnest thinking. It stimulates memory and story. The very play of form and

color half hypnotizes and autonomizes the mind, and as we see solid matter volatilize to smoke there seems some mysterious power within and behind it all. This the Parsees worshipped, and thus from ancient altars offerings went up to the gods. In children too, as still other returns show, all this and more is still seen only fuller and richer than history preserves it.

Early man often conceived himself as between volcanic fires below and sun, stars, lightning and burning empyrean above, and Heraclitus, working up many ancient and scattered philosophemes, taught all things to be fire in various stages of extinction, here burning hot, then smouldering, and the world alternating between the reduction of all things to pure fire and its almost utter extinction in cosmic death. The three stages of ice, water and steam were for him, no doubt, as formative a concept as we have lately been told it was for Hegel's idea of quality subsuming itself into quantity. For him soul was life or animal heat, a fiery particle diffused through and warming the body just as the sun was nightly absorbed in the earth, making its substance not only a little warmer, but lighter by night. This general view (which, with Schuster and Teichmüller regards Heraclitus as editor of the most magnificent of all the philosophic traditions of antiquity, and based most immediately on sense) has been yet far more grandly re-installed and developed by modern science in the doctrine of the gradual diffusion of thermal energy. Between  $-461^{\circ}\text{F.}$ , at which all gases if they continued their ratio of contraction to cooling and did not fluidize would vanish—that strange zero of the universe where even chemical action is dead—and some unknown degree of heat where the most obstinate substances would become gas or nebulae, just at that point most favorable for the most sensitive and rapid metabolism of carbon compounds man's body, and especially brain are poised, polarized somehow to possibilities each way, but held steady by fears, many directly due to burns, chills, and personal losses by fire and cold, but some incalculably older, preserved as it were in the fossil forms of neural tweaks, inherited terror, thrills and shudders, which we may regard as survivals from a stage of psychic life so low and so far transcended that the adult consciousness, while it may repress, cannot uproot them. The elements of the great Heracliteic philosopheme must have been developed in the souls of men by natural phenomena, but they were latent, scattered, and ineffective till this great master brought them out and together in a system which, from its very debris some are now coming to regard as the greatest of all the indigenous philosophic systems of Greece, and beyond all ques-



tion the one most filled with anticipations of the modern kinetic sciences.

## VIII.

## FEAR OF DARKNESS.

This extremely complex group of fears may be sampled as follows :

1. *M.*, 16. Always dreaded shadows, and feared to go up stairs or on the street where they were.
2. *M.*, 15. When younger used to fall into panic at shadows, and would run out of breath to get away from it.
3. *M.*, 6. Was found transfixed with fear at his shadow on the window, thinking it an Indian outside.
4. *F.*, 44. Used to play all day in an attic, but as daylight faded the shadows seemed horrible forms, about which she developed fear images that made the room intolerable later.
5. *M.*, 22. Is, and always has been gloomy, depressed and timid in a forest, his thoughts dwell on every gloomy possibility; the company, even of a dog, dispels it all.
6. *M.*, 14. Always thinks something moves in the twilight; whether within doors or without he often detects motion.
7. *F.*, from 10 to 14. Used to dread a certain window in her house, which she never could pass after sunset without feeling that a hand was reaching in to grab her, or that she saw a face peering in.
8. *F.*, 9. Can never sit on her piazza at night without hugging up to and holding some one from fear.
9. *F.*, 27. Never goes through any darkish place without looking behind, and often thinks she sees shadowy, fitting forms.
10. *F.*, 22. The cedar trees near by looked like men and were always fancied to be such; she can never go into a dark room without feeling chills and quivers, and then flushing.
11. *F.*, 18. At the age of 8 often had to pass a row of trees after dark; as she approached each tree she saw in it a man's hat, arm or leg, and hurried past, only to repeat this at every tree.
12. *F.*, 19. Used to pass papa's corn field after dark where were two scarecrows, made of coats on sticks; she saw them put up, and passed them daily without fear, but at night could never avoid a panic, and always ran past them.
13. *F.*, 19. Always pretended to be fearless of the dark, and would often go up stairs without a light, but if she touched a buffalo robe always had to scream with fear till some one came to her relief.
14. *F.*, 17. Can enter a dark place with composure, but the moment she turns her back to come out she has the horrors, must generally run, and sometimes scream.
15. *F.*, 17. Can never trust herself to look behind in the dark, and must always be the first to enter the house.
16. *M.*, 16. Used to be a coward in the dark, but was cured by being often frightened.
17. *M.*, 19. Ascribes his cure to never being frightened and never forcing himself to go where he was afraid to go.



18. F., 30. When 13 was frightened by her cousin, who jumped out at her in a sheet, she fell down stairs into convulsions, and ever since has horrors of everything white in dark places.

19. F. A young English woman never feared actual ghosts, but has dread of nameless, shapeless somethings in all woods, dark corners, under beds, especially behind her in narrow places, when coming down stairs, etc.; on fetching things from a dark room she comes down the first flight slowly with every muscle tense, dashes down the second, bangs and must often lock the door behind her.

20. F., 17. Used to sit by the window nights and wonder how it was in the woods out opposite, her mind would imagine all sorts of horrors there till she was all goose flesh.

21. F., 27. Can go into a dark room if she tiptoes so as not to hear her own footsteps, and if the floor does not creak, but always shudders from fear of something near and about to touch her.

22. F., 17. In a dark room feels some one looking at her from the corners and pursuing from just behind.

23. F., 19. Always strains her eyes to see things, often fancies she does, then stands perfectly still and gets hot and prickly.

24. F. An English woman has the idea of a long hand stretched out to seize her, often imagines herself actually touched, pictures "indescribable evil personages" each side of a long, dark stair case, and her joy at seeing light again is very vivid.

25. F., 34. Must always sleep with a light in her room, or else sees terrible faces.

26. F., 57. Can never enter her bed room without being assured that the gas burned brightly there all the evening.

27. F., 19. Pictures horrid forms if there is the least noise at night, and her face is beaded with perspiration.

28. F., 18. The great shadow over all her early life was the dread of the moment her mother should kiss her good night and leave her alone in the dark; she lay tense and rigid, held her breath to listen with open mouth, smothered herself under the clothes, with which her head must always be covered, fancied forms bending over her, often awoke with her heart pounding and a sense of dropping through the air, flying or falling backward, feeling quivery for hours; she now vows "I will always put my whole foot on the stairs."

29. F., 20. Always looked in every crevice of her room before going to bed, but one night, five years ago, found a broom her brothers had dressed and placed behind the door, the shock robbed her of all control, and for months she would laugh and cry without occasion, and has not yet got over it.

30. M., 16. Used to kneel by the bed and say the Lord's prayer, but gradually grew so afraid that something under the bed would grab him by the legs that he gave up praying.

31. F., 21. Had the habit of holding her breath and breathing as little as possible in bed, because she read of a man who saved his life by doing this when a lion was smelling of him and thought that by thus feigning death she might escape any monsters in the room.

32. F., 18. Used to eye the foot board, expecting every instant to see hand, claw or other awful shape, reach over it and grasp her foot.

33. *F.* An English lady can never bear the "big dark," and is sometimes frightened almost into fits by hypnogogic terrors; she lies perfectly still with her back to the wall or protected side, her hands under the clothes lest a spider should bite them, her feet drawn up so nothing can grab them, and often momentarily expecting a dagger to come up through the mattress from some one beneath.

34. *F.*, 14. Imagines dreadful men standing in the doorway and coming nearer till "she cannot stand it, but must break out with something."

35. *M.*, 14. "Most every night when I get most asleep I think I see something dark looking at me; sometimes I cover my head and seem to say, you can't get me now old fellow; often mother calls out and thinks I am fighting by the way I punch the wall and holler like some one was choking me."

36. *M.*, 16. Had for years a dread of waking up at midnight when dreadful things happened; one whole year he expected to see a black coach, with black headless horses, a headless coachman dressed in black, and a black lady who, when they drove up to the gate would get out, walk up to the front door, knock, return to her carriage and drive off.

37. *F.* An English lady teacher writes, as a child "I had a strange idea of safety when I was alone in the dark; I always imagined that at each corner of my bed there was a lion, who was always on the alert to fight with the ceaseless number of tigers and snakes which I fancied were prowling up stairs all night; so long as the lions were there I felt safe, but if I thought one disappeared I would lie awake in dreadful fear that the others would not be enough to struggle with the tigers.

38. *M.*, 16. From about 8 to 10 "had a foolish idea that bears inhabited the dark room of our house at night; no one could argue me out of it.

39. *M.*, 14. At 8 or 9 I was afraid of the dark and of imaginary beings which I called Bos and Boos;" now I have not the slightest fear of either, I can go to bed without a light; I conquered these fears by putting my trust in Divine Providence.

40. *F.*, 35. If she must go out after dark had to cling to the door latch until she had formally committed herself to God.

41. *F.*, 19. When a child on going to bed would gaze at the dark ceiling until suddenly little black figures appeared jumping about between it and the bed; at first they were watched with pleasure, but as they increased to thousands she would grow frightened, hold her breath, scream and rush out.

42. *F.* One woman writes that all her manifold spiritual fears sprang from one absorbing terror—dark; now she fears, she knows not what; as a child she feared a mysterious, invisible, but very real spirit she and her sister had manufactured in the nursery, and called the horrid man; he and his awful threats became so terrible that they were forbidden to ever mention his name, so he was called H. M.; when alone near dark the three children would sit *dos-a-dos* in the middle of the nursery, that one might watch the door, one the chimney, and one the window, lest H. M. should appear; "I never liked to kneel to say my prayers, lest some invisible hand under the bed should cut my legs off, nor to have the blinds up at night lest a strange face should appear at the window and I should see its lips moving to pronounce my name.

43. *M.*, 19. Has no definite fears, but whenever it gets dark has short and oppressed breathing.

44. *F.*, 23. Till 8 never went down cellar even by day; till 12 never dared to go to the barn after dark; till 15 could never go to bed in the dark; till 17 never could step over to the next neighbor's, to do each of these for the first time was an epoch.

45. Thirty-four mothers in Miss Marsh's club, Detroit, discussed this topic; most agreed that up to eight or nine, boys feared the dark more than girls, that parents were often to blame, but that it was unwise to try to break up this fear by forced methods.

In some of the strangest of these cases 27, 32, 34, 36, 35, 38, and even 41, it is possible that dreams have helped to give form or intensity. Often the dreaded object is definite and recurrent, as in these same cases and 37; often it may be one of several, and is ill defined, 9, 19, 26, 31, 32. Something is almost seen, 23, 27; or it has faded a little, but the fear of a fear, 42, 5, 8, 10; so that one dare not look behind, 14, 15; fright cures one of timidity, 16, but makes others worse, 17, 18; touch is fancied, 21, 23; especially in the form of being grabbed, 7, 28, 31, 32; animals, 13, 36, 37, 38; eyes, 22, or faces, 7, 24, are feared. Fright stops the breath, 27, 30; makes one run, 2; paralyzes another, 3; may restrict many normal activities of life, 43, leave a permanent scar, 18, 27, 28, 41; be overcome by the thought of God. Even forest gloom or shadows suffice to excite them. The cases above give but a faint idea of the intense and manifold fears of every kind of monster, accident, dreadful men, or worse ghosts that prey upon childhood in the dark. Only two cases in all our returns report complete exemption from this fear. Often in the best born and most carefully shielded and healthy children, they break out suddenly on the slightest suggestion or none at all, and overwhelm all control, predispose to or actually cause deep-seated nervous disorders.

Of the natural history of sleep we know very little. Hodge and Aikins<sup>1</sup> found *amœbæ* as active by night as by day, but Loeb, Graber and Vierworn found very low forms of life stimulated not only by light and heat, but often by color. Through most realms of life the withdrawal of the sun's influence tends to repose and sleep. Twilight subdues activity, suggests home and friends, and often thoughts of death. Darkness checks motion because most volitional acts need light, and are controlled by the eye. Blind children on coming to asylums often have very low muscular development because they have followed the inclination of all with grave eye defects to move about but little, till the motor elements

<sup>1</sup>"The Daily Life of a Protozoan." *AM. JOUR. OF PSYCH.*, VI, p. 524.

are sometimes hopelessly atrophied. In closing the eye gate, too, darkness shuts off the main current of stimuli to psychic activity. This has a profound influence on arterial and muscular tension, and upon the time and vividness of psychic processes, as experiments show. This is far more the case with children, because their psychic activities are more closely bound up with sense properties than are those of adults. Darkness removes the stimulus to hold the eyelids open, and also suggests closing them, and this suggests sleep, which state the eye is the first of the senses to enter.

Exceptions to this general rule, that darkness tends to sleep, are many, but nocturnal habits in animals must be and often can be explained as must the development of the "evening habit" among men. First, the eye itself often resists the abeyance of its function which darkness urges. Children strain the eyes to see in twilight, and even inky blackness, till perhaps darkness is reified as if it could be felt or cut, or the "big dark, out of doors" seems as if it would swallow them like a monster, and the little dark within becomes close and smothery. Entoptic objects and processes are projected, and like all faint outlines or points may be grouped into all kinds of things, especially if the sensation of stillness, often no less irksome and active, is ever so little broken. In the excitement of children at early lamplighting, the just begun rest of the visual area is suddenly broken, resistance to it succeeds; and in the habitual eye rubbing of "light hunger," so common among the blind, the nearest stimuli are applied, but in vain.

Shut off from light and resisting sleep, visual images may come out all the clearer as we close the eyes to think hard. At first in the young these are not far from after-images. It is in darkness without sleep that the imagination slowly learns to take its first steps alone, and develops its first pictures in visual terms upon the canvas of darkness. From many points of view, æsthetic, moral, hygienic, we can hardly overestimate the evolutionary and pedagogic value of the early stages of acquaintance with darkness. I suspect that the age when this fear is greatest will be found to be about the same as the interesting nascent period of eye-mindedness; (five to seven, after which age children becoming blind always continue to think in visual terms, but cease to do so if made blind before<sup>1</sup>). Whether faint images seem stronger because not contrasted with present sight, or energy, because shut off from optical processes, becomes

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<sup>1</sup> J. Jastrow, *New Princeton Review*, Jan., 1888. Also, Heermann's classic treatise.

greater elsewhere by the law of kinetic equivalents, or both, is unknown. Normal vision, too, dominates attention and tyrannizes over retina and percipient activities. We have to see what is before us, whether it pains or fatigues us, or not. But in the dark fancy images are spontaneous and *frei-steigende*. The professional oriental story teller is dull and inept like an owl in sunlight by day, and despite his will can unfold the charm of his art only when night has fallen. We know not what the imagination would be but for darkness, its great school, or if the eye, like the ear, could not close; or if eye pictures, like noises, had no night.

This brings us to our problem, viz., why childish fancy dwells on awful things in the dark, when children so strongly prefer pleasant to painful objects, and when night is the most protected and safest time. One reason very plain from our returns is found in the common phenomena of starting. On falling asleep the brain remits its repressive action upon lower centres and existing stimuli, and the tension of basal and spinal cells is relieved by a more or less general convulsion. From its analogy to the struggles of beheaded animals, this phenomenon is called psychic decapitation, and is so analogous to the start caused by the shock of sudden fear as to suggest danger. Sometimes we have the fear psychosis with no object of fear, or else some dim hypnagogic scene or object that may be present is intensified, or else a fit and adequate one is instantly suggested from the symptoms. Night-mare, and even most dreams (see IX below), and other causes that wake us, are painful, and so feared. Thus when the momentum of sleep is well on, most of our wakings, if premature, have been painful so that darkness has here another association favoring fear.

Again at night, and still more in sleep, we know we are helpless. We could neither fly nor fight. We are also more alone, and solitude favors timidity, and helplessness not only suggests, but seems to invite danger, which the sensitized ear and brain so easily invent. Again, when the constraint of sense is off and images struggle to reach and survive in the focus of attention, those that are stronger and more rousing have an advantage. Thus the nascent imagination takes its first lesson in the school of fear as both anticipatory and reminiscent pain, just because the latter is a stronger stimulus than pleasure, and outclasses it in this struggle. Children who gloat over horrors may be instinctively applying strong stimuli to develop the rude, early stages of imagination, as we pinch ourselves to keep awake.

We must go back of this to explain fully both the fear diathesis and some special fears. It is just in these drifting

automatic states so favored by darkness, and sometimes even by fatigue, when the imagination is laying the basis of mind and first divorcing thought from sense that the soul feels the pain of its old scars received in the long struggle by which intelligence unfolded out of instinct and instinct out of reflexes. In the past the pain field has been incalculably larger than the pleasure field, and so potent is this past that its influence dominates the most guarded child, in whom otherwise the pleasure field should be relatively the largest anywhere to be found. Now, darkness and the unknown alike have few terrors; once they had little else. The old night of ignorance, mother of fears, still rules our nerves and pulses in the dark despite our better knowledge. Lacking this latter, children fall still more abjectly under her spell. Hence it is that animals found only in distant lands or long extinct, robbers, impossible monsters, ghosts, etc., rarely present, and never feared in waking consciousness, bear witness again to the remoteness of the past to which some of the roots of this class of fears penetrate.

## IX.

## DREAM FEARS.

1. *M.*, 12. Had a bad nightmare, and for months his fear of its recurrence was such that he would deny himself any food and refrain from anything any one told him would cause it; several children have persistently tried to keep awake to avoid bad dreams.
2. *M.*, 19. Has always been a victim of horrid dreams of things taking on the attributes of persons, and doing weird and uncanny things; these acts he long felt even in waking were possible.
3. *F.*, 16. Has had dreams that have left impressions on her brain that she thinks will last her lifetime.
4. *F.*, 14. Late reading of novels gives me a bad dream; I always fear I shall dream it again and that it will come true.
5. *M.*, 24. Has the most vivid dream fears; he has been eaten by animals, burned alive, his bones broken by falls, mangled by lightning, etc.
6. *F.*, 9. Cannot go home from school alone after she has had one of her bad dreams.
7. *F.*, 18. When she has a cold her tonsils enlarge, and she dreams of all kinds of enormous and horrible things touching her.
8. *F.*, 19. Had a standing horror of walking in her sleep, which she never did, leaping out of windows, etc.; she feared to see the door locked nights, lest she should remember where the key was and could unlock it in her sleep.
9. *M.*, 34. When about 8 dreamed three times that his brother was drowned from his own carelessness, and felt these prophecies; he was beside a silent river, heard his gurgling sound in sinking, put out his hands to feel for him below; the thought of these dreams haunted him for years, although he shivered and prayed to forget them.



10. *F.*, 16. Had a dream that will always be more vivid than any reality; she was alone with her mother on a wide plain; all was dark, but less so in some places than in others; from a cave on the left people were coming, weeping and wringing their hands; the stars came out, and then suddenly all was dark again; again they came and darted across the heavens with comets and meteors; a flash then lighted the east and shook the earth; "I hugged and kissed mother, but her lips were dry and clung to mine; my arms gradually fell away and I sank dead."

11. *F.*, 12. A colored girl was a great sleep-walker; once when thus walking on the porch she was grasped, pushed over, but held; this wakened her, gave her a dread of high places and cured her of sleep-walking.

12. *M.*, 5. Is sickly, and his greatest trial is in an oft-repeated dream of a big red cow with big green eyes; his mother writes, so great is his fear that I believe if he should meet a cow at present he would die.

13. *F.*, 19. Has since 8 a persistently recurring but vague dream. "Some kind of a wild thing comes up in front; I suspect it is a little hideous, old woman, but what I see is a pair of arms and hands waving, stretching and twisted in and out of shape; it gives me the horrors, and I have bad feelings long after."

14. *F.* An English lady teacher has been from 2 to 3 years of age subject to six or seven distinct forms of nightmare, each recurring every three or four months in never deviating order at intervals of about three weeks, so she could always predict the next one; they were perfectly clear and never changed, and each had just so much horror; in sleep she could predict their course, and she would awake with joy that it was over; although they ceased at about 12, she still remembers all so vividly that she can almost hear the mocking laughter prominent in one of them, and can still feel the sensation of flying in another.

15. *F.*, 40. When 19 once dreamed of going back of the barn, digging a grave, making a coffin, getting in, dying, being buried and coming to life in the grave; this gave her a permanent horror of being buried alive.

16. *F.*, 30. Remembers a dream of something coming at her, a peculiar rushing whirl, a roaring in the ears, cold perspiration, a shrinking on losing consciousness, which was caused by the absence and cured by the presence of a light in the room.

17. *F.*, 19. Had an oft-repeated nightmare of being pursued and slowly overtaken, which she thinks has left a permanent mark in her nerves.

18. *F.*, 18. The worst dream fear was of some one breaking into the house; it ended in a scream.

19. *M.*, 16. An oft-repeated dream was of seeing himself standing at a gate trying to pick up a stick that he could not quite reach; his arm would stretch out long and grow rigid, and the terror of it still remains.

20. *F.*, 30. Often has a waking sense that some object in the room is getting bigger and coming nearer; this has grown very terrible, and she ascribes it to a dream.

21. *F.*, 17. Is often made sick by recurrent dreams of being bound, not being able to hurry, walking on a board over chasms and falling.

22. *M.*, 35. At the age of about 11 often dreamed of being in a



large sphere from which he could not get out; he would often know that his mother was holding his hand, but the sense of being shut in the awful thing would persist a long time in the waking state.

23. *F.*, 17. Feels that her brain has been permanently scarred by dreams of Indians.

24. *F.*, 16. Often is where snakes are so thick she cannot walk without stepping on them, of coming to chasms that widen as she would cross, that the earth cracks open as she walks, etc.

25. *F.*, 19. The favorite dream terror was of being in an open field with no bounds; she would start from a big tree and run on and on, seemingly all night; it would never end, and she would stop in misery and awake tired out and in a cold sweat; she never feared open spaces when awake.

26. *F.*, 18. Dreamed of a big dog which she could only escape by rolling down stairs, through the yard, up the streets; this caused dread of dogs.

27. *F.*, 19. Often dreams of swinging a great distance in the air, and feels the cold swish of it on the cheeks; all is spooky, and she is breathless and paralyzed; her other dream is of being in a vast clear space, with nothing anywhere but just blinding whiteness; suddenly all changes and she is looking at a narrow place, which is the deepest black imaginable.

28. *F.*, 21. Often dreamed of walking off the wharf; she did not sink into the deep below, but would wade on sometimes as if on a springy board; the horror was to start.

29. *F.*, 20. Often has a feeling of floating and twisting in the air with no support, and got so she could not sleep without clasping her sister's hand; in waking this all comes to mind when going down an elevator.

30. *M.*, 19. Dreamed so much of flying that he told stories of his aerial soarings and that he almost came to believe that by filling his lungs, stretching his arms and running he can leave the ground; he still wakes sometimes sure that he has discovered how to fly.

31. *F.*, 44. Dreamed so often of falling down stairs that she came to dread stone stairs, new steps, etc.

32. *F.*, 18. At the age of 12 would dream of her father throwing her into the water, feel herself falling after waking, and almost began to suspect he would do it.

33. *M.*, 16. The dream terrors are of climbing things and having them topple over.

34. *F.*, 16. Enlarges on the delight of awaking from her dream to find after all she is not riding along tied in a gypsy wagon.

35. *F.*, 15. Long had a sense that she had just awoke from a dream, when she tried to look back on her infancy she felt that she had come to life that day; this worried her and made her feel that she was very old.

36. *F.*, 18. When 10 saw a Bible picture of a woman falling on spears held by soldiers, which long haunted her dreams.

37. *M.*, 16. Had horrid dreams of the devil and of a big something coming toward him and getting larger, till his head would whirl round.

38. *F.*, 25. Often dreams of the walls of a room slowly coming together to crush her, and of a cruel face growing bigger.

39. *F.*, 17. Has recurrent dreams of driving and dropping the reins; sometimes the horse runs and sometimes not.

40. *M.*, 14. Has dreamed so often of being chased up to the doorstep which he could not climb that now he can think during the dream that it is only a dream, and that when he starts to fall he will soon awake; this has now robbed these dreams of terror.

41. *F.*, 19. Often used to remember while dreaming of flying that she had dreamed it before, but late years believes she is really flying.

42. *F.*, 18. Shuddered at intervals for weeks at a tall and awful man in the pulpit.

43. *M.*, 15. Persistently dreams of conflicts with animals.

In some of the above cases symptoms of fear are strong, but the images are not clear, 13, 16, 17; in others favorite terrors recur in different combinations, 17, 20, 37; in some optical symptoms, 10, 27, or tactile experiences, 7, are prominent. Some are cause or effect of intense strain or effort, 19, 25, 26, 24, or may leave great exhaustion. Falling and floating, 27, 28, 29, 30, 36, 41, are common; claustrophobia, 22, 38, less so. The form of dream terrors is often recurrent or even known at the time to have been previously experienced, 9, 12, 13, 14, 17, 21, 24, 25, 29, 31, 39, 41, or are expected to come true because repeated, 4, 9. Fear of bad dreams may cause dread of sleep, 1, 8, and waking may be a welcome escape, 14, 34. Not only are awful experiences or flitting fancies repeated and magnified, but dreams may leave long and perhaps permanent traumata in the waking state. Sudden dread of dogs, 26; of cows, 12; of going out alone, 6; falling on stairs, 31; Indians, 33, and even of a parent, 32, may thus be suddenly injected into the waking consciousness. Flying, 30, and otherwise strange things, 2, seem possible; fatigue rising almost to paralysis may remain, 25; and education in sleep is possible, 11. The cases selected above show but faintly the volume or manifold form of this group of very common fears. See, too, under VIII, cases 27, 32, 35, 36, 38.

Any class or form of fear may arise in dreams: falling, orientation, animals, thunder, water, fire, etc. Thus to explain these would be to explain all fears. There are frequent tendencies both to specialize and repeat. Any impression grows to illusion easier than in darkness, because the repressive influence, not only of sight, but of other senses and centres, is removed. Hence evils only feared in waking become real in sleep, and we actually fight, fall, are chased, seized, choked, run till we drop, fly, sob, love, and die. We shall make here but one suggestion. Sleep is a process of repose for run-down cells, a state of great metabolic activity on the plane of what we may call the higher digestion, and nor-

mal, spontaneous waking of any organ or centre that sleeps, should be satiety, overflow and perhaps euphoria. To secure such sleep and waking is one of the best ends and tests of all that can be called hygiene and regimen, whether of body or soul. Circulation and digestion should be at their best, and in sleep we may be especially sensitized to any disturbance here. Vast as is the majority of all painful dreams due to this easily avoidable cause of so much of the fear diathesis, these are all due to interferences with normal sleep. This latter would not exclude dreams, because waking is gradual and, as as it were, in spots, nor would it exclude dreams of fear and pain, if these had specific centres and functions whose normal action caused them. That there are such foci of pain no less deep seated and with quite as strong a tendency to act as in the case of pleasurable sex dreams, seems to me probable from our full dream record. Some of the inherited and repeated cases, as well as those that fall under other sections, suggest an organism hereditarily handicapped with old insane tendencies, but functioning normally in dreams, rather than they do overfeeding, etc., which, however, like any other present condition, may be an occasional cause even of this class. Nowhere is there greater need of further and more special study than of such dream motives as flying, getting bigger, being held, lost, etc.

## X.

## SHOCK.

1. *M.*, 18. Once saw a sheep run over, and heard its death cry of agony; for weeks he would go through it all nights, and has never got over it, although now to see animals suffer causes more anger than fear.
2. *F.*, 17. Never feared robbery and murder till old enough to read newspapers, and never feared diseases till after learning their horrors in quack advertisements; now both haunt her.
3. *M.*, 37. Never takes up his morning paper without palpitation and nausea, fearing the gruesome things he is sure to see and must read.
4. *M.*, 16. Saw a case of sunstroke, and for years after dreaded the sun, and kept in shady places when possible.
5. *M.*, 6. Was once in a cyclone, when his mother gathered her children and said they would all die together; was frightened into St. Vitus' dance and made weak-minded.
6. *F.*, 17. Was once run away with; ever since in any crowd or excitement, horror makes her beside herself.
7. *F.*, 9. A girl tore her nail in a door and fainted; her older brother saw it, fell in a faint and injured his shoulder; another brother found them, and all three were found lying together in a faint, and were nervous for weeks.
8. *F.*, 27. Starts at every little thing twenty times a day; her heart leaps to her throat.

9. *M.*, 12. Started with fright for months every time a new clock struck.

10. *F.*, 2. Her horror is a jack-in-the-box; it has made her nervous and jumpy.

11. *F.*, 7. The agony at hearing a drum was "too intense to describe."

12. *M.*, 5. When he was playing his grandmother gave one of those sneezes that "made the very crockery rattle in the pantry;" he was shocked into unconsciousness, and lay fainting for a long time.

13. *F.*, 13. The greatest shocks for her is to be intent on something, and looking up suddenly to find people near.

14. *F.*, 7. The worst punishment was to have a teaspoonful of water thrown in her face; this was stopped because of its effect on her health.

15. *F.*, 18. Ever since she heard the word electricity, it has been the source of great terror; in the physics class she can never touch the brass knobs; she tried it once, but worlds would not tempt her to do it again, no matter how light the shock; "they say batteries strengthen people, but I would die first."

16. *F.*, 12. Her mamma once touched her hand in the dark; she jumped, fell down stairs and had "my worst attack of hysteria."

17. *F.*, 13. Once in church there was what seemed a loud knocking at the door; they went out, but found nothing, although it was repeated; she thought nothing of it until later she heard some thought it a heavenly summons; for years after that a sudden knock aroused great fear.

18. *M.* A man dying of typhoid fever was moved from a burning house in the country to another house, which also soon caught fire, when he was taken to the road, where he was burned by a hot shingle on his forehead; his wife too died some weeks later from the oft-rehearsed horror of it all.

19. *F.*, 18. Heard of the sudden death of a friend she had chatted with that morning; "the awful shock nearly killed me, and changed me in a moment from a careless girl into a woman."

20. *F.*, 13. Never was afraid except when burglars entered her house last summer.

21. *F.*, 12. Never feared until they were shipwrecked, coming from Europe last fall.

22. *F.*, 18. When burglars were found in the house, "my teeth chattered, I twitched all over and could not say a word."

23. *M.*, 13. Saw "a fellow's leg mashed two years ago," and soon after "saw a fellow killed when jumping from a train; ever since he has had a horror of the cars, though he must ride on them every day to school.

24. *M.*, 13. Saw the "Span of Life" at the theatre, and was long haunted, especially nights, by the villain's laugh.

25. *F.*, 15. Says "a tragedy at the theatre sets me nearly crazy with nervousness."

26. *F.*, 18. The Chamber of Horrors at museum almost gives her nightmare by night, yet it has a great charm for her.

27. *F.*, 12. Visited the prison, and while seeing the men work felt someone take her arm; she shuddered and almost sank with fear, and although it was only another girl did not soon get over it.

28. *F.*, 17. Ever since her brother jumped out at her in the dark, she fears darkness and sudden meetings.

29. *F.*, 18. When a small child the cook once jumped out of a dark corner to frighten her; she can never since pass that corner in the dark.

30. *F.*, 16. At the age of 10 her brother jumped at her, and the fright caused stuttering which lasted for years, but was slowly overcome.

31. *F.*, 15. "When jumped out at one night, stood panting and silent for some time; was nervous all the evening and night; next day had nausea and fainted, and may never quite get over it.

32. *F.*, 19. Loves the stage, but must know if a pistol goes off in the play, and if so will not go.

33. *F.*, 17. Guns are the torment of her life; her brother was fond of shooting, but she would run, hide, shut her eyes, stop her ears, and often scream.

34. *F.*, 18. From a child feared being shot, having a presentiment that she was to die that way; when 12 dreamed she was sentenced to be shot, and although she felt the bullet strike it did not hurt her; this cured her fear.

35. *M.*, 19. Was about 8 when he first learned that a gun would shoot where it was aimed; by seeing a man do the same he lost his fear.

36. *F.*, 18. Was in a hammock, toward which a dog rushed after a cat; when he was near he gave one bark, and she saw the open mouth which she thought was meant for her; "it was over in a flash, but I could not move; was given a horror of dogs, and had complete exhaustion for weeks."

37. *F.*, 34. When 9 and was playing on the track suddenly saw a train rushing toward her; the next she knew she came to, beyond a fence, over which she had unconsciously climbed; ever since she cannot look at an approaching train without fancying it a horrible, living monster.

38. A young man and wife once crept under a freight train which blocked their way home, when the cars engineward began to move; the sight and sound of freight trains for years afterwards filled her with horror.

39. *F.*, 21. Snatched her baby sister as she was about to fall down cellar; the fright caused a sudden throb in her head, and she passed into one of her worst nervous headaches.

40. *M.*, 10. Entered a dark kitchen to drink, when the cistern burst and the water wet his legs; he ran back, locked and held the door, beside himself with fright.

41. *F.*, 44. The least shock causes nausea, sleeplessness and excessive urination to her, but a pleasing surprise, like the unexpected arrival of friends, robs her of appetite and sleep.

42. *F.*, 30. Upon sudden news of a friend's death had hemorrhage of the womb, from which she died in a few days.

43. *F.*, 6. On hearing sudden news of the death of a friend shouted to the messenger, "It is a lie, go right away," and *F.*, 22, struck him in the breast, lost consciousness, and for years after could not hear of like accidents without fainting and acute pains in the back; a spot on the door remains somehow indelibly associated with the scene for twenty years.

44. *F.*, 42. All firearms are dreadful, and a gun is feared "without locks, stock or barrel."

45. *M.*, 14. Says "all guns kick and may burst, are dangerous at both ends and all the way between."

46. *F.*, 8. Always runs past the armory on her way to school, and *F.*, 19, always runs up and down the stairs under which in a closet is a gun.

47. *F.*, 1. Suddenly noticed with a start of alarm the picture of a big dog the nurse had pinned up the day before.

48. *F.*, 43. Sat long on the beach a rod from a strange child at play; after a long time the latter looked up and screamed with fright.

The shock may be caused by slight but unexpected touch, 27, 16, 15, 14; by sudden bad news, 19, 42, 43; by great danger, 5, 21, 22; by noise, 9, 11, 12, 17, 32, 33, 34, 35; by every slightest thing, 8, or by thinking over things not feared at the time, 17, 26, 28; while being jumped out at, 28, 29, 30, 31, is almost a class by itself. Fear fetichism is suggested in 15, 18, 24. In sudden frights some are motionless, or faint, 7, 27, 31; others make a wild rush, 37, 40, or fight, 43, or develop slow, grave symptoms, 5, 16, 30, 39, 42, 43. Fright may cause painful associations, 3, 23, 29, and be cured in curious ways, 34, 35. For two children and many women the Fourth of July is dreaded on account of explosions. Four cases of shock or prostration are due to explosions at the theatre. Three were made ill by blasting. Besides our 603 fears of thunder and lightning, there were nine well developed fears of earthquakes, 14 scares at locomotive bells and whistles, 12 haunting fears of paralysis, 4 of epilepsy, 12 of apoplexy, 26 shocks at the onset of street bands, fire and church bells, and 9 of sneezes, or stories with "boo" in them.

The effects of sudden shock are of two chief kinds. The first is a muscular start. This may be almost entirely incoördinated, a "mass of clotted motion," or more organized movements of defense, flight, etc. It may be of all degrees of violence, from the slight start, so common in impressionable people, to cramp or reflex epilepsy, with resulting lameness. The other group of effects is predominantly psychic. There is intense *commotio cerebri*, with its present distress and perhaps sequent obliteration of memory and motor images, paræsthesia, hypalgia, etc. In the voluminous shock literature so suggestive for psychology, there is a marked recent tendency to turn from the earlier theories of specifically spinal to general localization, from *vaso-motor* paralysis, blood, cell, and other attempts at physical explanation to the admission of psychic causes.<sup>1</sup> Cases like 5,

<sup>1</sup> Openheim, "*Die Traumatische Neurosen*," Berlin, 1892, p. 178 *et seq.* And also Groeningen, "*Über den Schock*," Wiesbaden, 1885, p. 134 *et seq.*



6, 9 and others suggest a psychic factor, acting analogously to an epileptogenic zone or to some scars. Over-attention, sudden exhaustion, reflex inhibition, or emotional strain, to which neuropathic people are so predisposed, or perhaps hypnotic suggestion, may cause pain, changed sensations, and psychic alterations so deep as to affect the entire mental and moral life, and all may be of ideogenic origin.

Whatever theory of shock we adopt, however, we may, I think, conceive the hodograph of attention, with all its sequence of topics, intensities, tones, etc., as always moving between the extremes of complete interruption and extreme continuity. If the latter is perfect, there is unconsciousness, illustrated by the frog boiled to death without moving if the heat is applied gradually enough. Rupture of continuity is shock. The minimal changes perceived, and especially the maximal of sudden change that can be reacted to without error or waste of energy, differ widely with age, vigor, health and moods, and probably have anthropometric value not yet recognized. Variations from excessive vulnerability to shock to obtuseness, from one person's horror of it to another's passion for it, may have the highest pedagogic as well as diagnostic value.

Now dread of shock and surprise, which, if extreme, we may call hormephobia, appears to be a very fundamental instinct of physical and especially of psychic preservation. It prompts birds and animals to post sentinels, build shelters, etc., and profoundly modifies their habits. Spencer's theory of the evolution of the eye as anticipatory touch in order to avoid sudden contact, the definition of science as prevision, the struggle to get science logically organized and thinkable, evolution, the elimination of miracles, are all in order to protect from and save the waste of shock by enabling man to anticipate change from afar, and do his thinking and feeling with the shock elements reduced to the point of greatest possible economy, yet not so faintly agglutinated as to be obscure. Even attention is an organ of anticipation, and increasing knowledge makes its hodograph approximate an ever steadier causal alignment. As man reduces and organizes the shocks with which his psychic life began to terms of greatest legibility with given time and energy, the subtlety required to deal with these reducta as well as impressionability to the vastly wider ranges they open, increases, and intelligent adults grow less familiar with the ruder forms of shock and less tolerant of them. Children, however, are more exposed. Their world still has wide realms of chance, where the most unexpected things may happen any moment. In many cases of development arrested in juvenile stages, we still



get glimpses not only of what the ancient chaos of ignorance really meant and of the awful struggle and loss by which it has been overcome, but also of the sanitizing culture power of what are now the common-places of science. Just in proportion to the lability or convulsability of the psychic elements is the dread of anything sudden that may cause fulminating discharge, so that no class of fears needs to be more carefully respected, or is harder to treat, while no class of fear studies opens a more promising field for scientific research than this.

With this class of fears, more perhaps than with any other, we now have within reach the possibility of a direct reference to the underlying mode of brain action, which may be roughly set forth as follows:

Amœboid motions, which represent the beginnings of most of the basal physiological functions and which are of such increasing charm and suggestiveness, have two chief phases, one of expansion and one of contraction. In the former living substance stretches out pseudopodia in any direction, flows or pulls itself along, takes food, etc., and in the latter state, which is assumed in response to touch, jar or shock, as well as to strong thermal, chemical or electric stimuli, it balls itself to present the least possible surface, and always dies contracted. Whether vital phenomena represent a new solution of a complex problem in molecular mechanics or a new vital principle, we, of course, do not know. They are, however, limited and partly controlled from without by the laws of surface tensions, and one problem is to find the causes of its diminution which lets out the movements and its increase which favors the spherical form,<sup>1</sup> affinity of the protoplasm for oxygen lessening the tension and possibly rapid metabolism increasing it.

Duval<sup>2</sup> suggested that the free nerve endings of Cajal, which the latter found often in contact with both the protoplasmic processes of nerve cells and with the body of cells in the brain, might be conceived to retract by amœboid motion, and that this breaking of contact might be the cause of sleep and narcotization. In the waking state he conceived this conductivity as restored by spontaneous re-contact, although movement was sought for in vain by Kölliker in the ends of both the motor and sensory fibers in living larvæ, where they would be most expected. The view of Duval has been modified and extended by Rabl-Rückhard, while Lenhossek<sup>3</sup> thinks such a view does not impair the functional value of brain

<sup>1</sup> Verworn, "*Allgemeine Physiologie.*" Jena, 1895, pp. 544 et seq.

<sup>2</sup> *Comptes Rendus à la Société de Biologie*, Feb., 1895.

<sup>3</sup> "*Der Feinere Bau des Nervensystems im Lichte der Neuesten Forschungen.*" Berlin, 1895. See p. 75, 143, etc.

architecture, but is an addition well befitting the complexity of nerve function. Moreover dendrites may be tuned to act upon certain contacts and not to others, growth may make new contacts possible, etc. Lateral fibrils he thinks receptive both of food and of stimulus. If Cajal's free ends are to be assumed so often where Golgi found network, and if they act without contact, Lenhossek can readily adjust himself to a new principle of action at a distance in place of the idea of direct nervous continuity, for a connection that is functional only is less materialistic.

Cajal<sup>1</sup> says the neuroglia cells of the gray substance show all stages of retraction and relaxation. In the former the protoplasm of the cell body increases, the processes grow short and thick and the secondary processes vanish. In this contractile function he compares them to the pigment cells in the skin of color-changing animals. Contractile brain cells he finds most abundant in the molecular layer where fibrillar contacts are thickest. In their relaxed state the neuroglia processes pass between the nerve tips and the cells and isolate them, while when contracted they absorb the protoplasm of the secondary processes and thus cause contact. According to Duval, contractions accompanied psychic rest and relaxation meant activity. For Cajal, the reverse is true, and these cells become by their movement, which may be automatic or not, shunting and isolating agents. As the energetic contraction of these cells makes connections here or breaks them there, there occur in the mind associations, imperative rapidity of words or thought, or stagnation and forgetfulness, monoidistic concentration of attention, vehement action, etc. In attention the hundreds of pseudopodia inserted into each brain capillary contract, and thus cause hyperæmia, or congestion of the perivascular space. Thus the physical basis of all psychic acts and states whatever, morbid as well as normal, sleep, fatigue, attention, confusion, etc., are all created by the contraction and relaxation of cell branches in the brain. Demoor<sup>2</sup>, leaning on Nissl's dendritic granulation theory, thinks any prolongation may be and those caused by morphine, alcohol and chloroform are always moniliform. Without going quite so far as Klemm, who says<sup>3</sup> "reticular, fibrillary, alveolar, are only states of one and the same plasma, transient or lasting during life, or perhaps first assumed in the

<sup>1</sup>"*Einige Hypothesen über den Anatomischen Mechanismus der Ideenbildung der Association und der Aufmerksamkeit.*" *Archiv f. Anat.*, 1895, p. 367.

<sup>2</sup>"*La Plasticité Morphologique des Neurones Cérébraux.*" *Archiv. de Biol.*, XIV, 1896.

<sup>3</sup>*Jahrb. f. Wiss. Biol.*, 1895, Heft 4.

act of death," Demoor thinks that much histologic detail does not give us a fixed aspect of the neurons, is not their real morphology, but only their reactionary state, and shows us chiefly the enormous plasticity of their sensory protoplasm. Cells, he thinks, associate their functions by establishing more or less contacts between their prolongations, and so add and coordinate their otherwise monadic work by their own energy of biotonic movement. Retzius<sup>1</sup> takes a more conservative view, conceding longitudinal transformation to glia cells, at least during foetal stages, and holding that if tangential contact of processes occurs then, they rigidify later; while Kaes<sup>2</sup> thinks his measurements may show that the caliber and volume of fibers increase by use, and that the extremes of acute delirium and stupidity may show a difference of size, and Golgi<sup>3</sup> thinks motion undemonstrated. While this motion is as yet unproven, these hypotheses of motion have created intense interest and given great stimulus.

The dead brain that histology has chiefly studied heretofore, affords us little idea of the complex activities that take place in the living one. The classic work of Hodge has shown to the eye the metabolic cell changes attending normal nerve action. Now, if movements like those above or any others do attend normal psychic activity, I think we are surely justified in inferring that strong shock, which is perhaps the most drastic of all experiences, must greatly increase it and cause transformation, obliterating or intensifying some associations and opening up new ones, giving to attention new liabilities, modifying our automatism, laying the basis of paræthesias, loss of words, imperative ideas, impulsive acts, innervating the wrong or antagonistic muscles, flushing the vaso-motor or splanchnic nerves, causing stuttering, sudden rigidity, exhaustion, paresis, and all the other shock effects possible to the point of the dual personality phenomena. Strong and sudden experiences of fear may have shaped the brain and modified its minute structure in the past to an extent hitherto unsuspected, laying even in its now fixed architecture, to say nothing of its motor habits or the diatheses of its neurons, a physical basis not only for easy fear-convulsability generally, but especially sensitizing it for particular forms of shock. Brains of greater plasticity or less established coherence of parts or elements would thus most dread and be most damaged by shocks of eruptive violence.

In attempting to explain "why we are distracted," G.

<sup>1</sup> *Biologische Untersuchungen. Neue Folge*, Bd. VI, 1896, pp. 28 and 36.

<sup>2</sup> *Wien. Med. W. Schrift*, 1895, Nos. 41 and 42.

<sup>3</sup> *Untersuchungen*, etc. Jena, 1894, p. 270.

Hirth<sup>1</sup> conceives the ego as a synthesis, mosaiced together of many elements, the parts of which are not all functionally connected in any act or at any given time. I find hardly a feature in those primitive symptoms of certain forms of mental alienation which Meynert called amentia, Koraskoff conceived as polynuritic psychoses, Kräpelin describes as delirium of collapse, Ziehen as dissociative paranoia, Chaslin as simple mental confusion, etc., that is not present, at least momentarily, in extreme sudden fright. Very closely connected with these fears are those of the following section, which still further illustrate this group:

## XI.

## THUNDER.

1. *F.*, 18. Summer in the country would be paradise but for thunder, which spoils it all.

2. *M.*, 17. Thought it impious to look at the heavens when a thunder storm was approaching; it was also impossible.

3. *M.*, 4. Was always angry and thought God was shooting all the time on purpose to scare him.

4. From 3 to 5, *F.*, would kneel by her mother's lap in agony and cry, and wish she were dead.

5. *F.*, 18. Always wants to lie on a sofa with her face buried in a particular way, but her fear is not for herself, but the buildings.

6. In a school room one day every clap of thunder caused many pupils to break out with fresh cries, but as it grew bright and the shower passed, the bolder laughed and gibed at the cries of the others to rouse their spirits.

7. *M.*, 12. Wants everybody to make all the noise he can in a shower.

8. A lady I know, of about 35, has been bedridden for eight years with a rare form of nervous prostration. She mends steadily during cold weather, but sinks away during the season of thunder showers just in proportion as these are severe. Every peal makes her rigid and crampy like a frog with strychnine. Every fall her state measures the total amount of thunder during the season.

9. *M.*, 6. Deaf and dumb, has great horror of thunder and lightning.

10. A girl of 8, in whom this fear was strong, often imagined the house struck, the family lying dead on the floor, in bed, in the barn, etc., striped red, white and blue with lightning; she never spoke of this, now aged 17; always thinks vividly of it in showers.

11. *M.*, 18. Saw a tree slivered when 9, and now every loud clap of thunder brings this image vividly up.

12. *F.*, 18. Always says automatically to herself: "In some such storm as this the earth will be shivered; will it be now?"

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<sup>1</sup> *Localisation-Psychologie*, 1895, p. 67 *et seq.*

13. *F.*, 11. Almost has fits in showers, but says that when it stops and the sun comes out, and there is a rainbow, and the air is fresh and cool, it is the prettiest thing in the world, and she is as happy as she was terrified.

14. *M.*, 16. Has great terror, but when showers are over wishes they had been heavier, as they have great fascination, specially for memory.

15. *F.*, 17. Sweats and cannot move.

16. *F.*, 24. Feels with every flash, although with eyes closed, as if she had been pounded on the head.

17. One young woman always fears thunder will crush the house down flat.

18. Another, 18, fears the sky will burst.

19. *F.*, 14. That a rude wagoner above will fall through.

20. *F.*, 20. That something awful is booming down from the sky toward her.

21. *F.*, 19. Her chief fear is that the flash may destroy her sight.

22. *F.*, 18. Fears a big ball of fire may get into the house and explode, so that everything must be shut up.

23. *F.*, 16. Says to herself after each peal: "I am not dead yet; it is nice to know that thunder comes after the lightning, although this is cold comfort, because the next clap is just as dreadful."

24. *F.*, 19. Got her fear of thunder from a cannon on the 4th of July.

25. *M.*, 14. Was cured of this fear by being shown the beauty of the lightning at the window by his father.

26. A teacher cured her long fear by having to encourage timid pupils.

27. *F.*, 17. Cured herself by realizing that God sent showers to make things grow.

28. *M.*, 14. Reading about electricity cured him.

29. *F.*, 28. Can never remember having a fear of anything living or dead; this she ascribes to perfect health, and to the fact that she was never left with servants. Her parents made thunder showers an object lesson to teach electricity and æsthetics, so that she longed for them, and was surprised that others dreaded them.

30. *M.*, 7. Goes off and prays God not to let it strike him.

31. *F.*, 3. Becomes frantic with terror whenever, after experiencing a heavy shower, she heard the word rain.

32. *F.*, 19. Her conscience talks loudest and her wish to be good is strongest when a shower is coming, especially if the sky is copyery.

33. To *M.*, 14, thunder means war and brings up its images.

34. *F.*, 28. Has always had the greatest love of watching the lightning; the louder it thunders the more she is exhilarated.

35. *F.*, 34. Weeps several handkerchiefs wet in a thunder shower.

36. A well-known professor as a boy always watched clouds and studied winds, squinted across trees to judge how thunder-heads were moving; the first solemn roll was often mistaken for other noises; he would not work to save hay, because he had heard that sweat drew lightning. Every fork full of hay pitched on the load would attract lightning to the steel tines; he skulked near trees that they might draw it, yet not too near, for fear of falling limbs;

would never set foot on a rock, which was dangerous; kept glass under the bed posts; sat on stairways or rolled in a hot feather bed; made prayerful compacts with God. When the thunder began to abate he felt a sense of triumph more than gratitude and wanted to jeer the clouds and dare them to hit him.

37. F., 26. Always knows by her nervous tension long beforehand if a shower is coming; is in a state of abject terror during it, cannot keep still, collects and hides all knives and steel things, loses power of speech and motion if there is a loud clap, thinks of her sins, always has a headache afterward, and wishes there was no summer so there would be no thunder.

Of all our cases, but two, 29 and 34, had not feared thunder. This fear is often cured, 25, 26, 27, 28, and resistance to it appears in 3, 7, 23. It may be specialized, as in 10; develop specific imagery, as in 10, 17, 18, 19, 21, or almost ritualized acts, 5, 36, or automatic psychoses, 12, or convulsions or paralysis, 15; strong emotional expressions, 4, 6, 15, 35, 37, or fear fetishism, 31, or moral and religious associations, 3, 30, 32, 36, may appear. It may gravely affect health and the course of life, 1, 8, 36, 37, and the reaction afterward may be joyous, 13, 14. On the approach of a thunder shower, some shut all the windows, blinds, curtains, and perhaps light the gas, go down cellar, into a dark closet, cover up the head in bed, sit on pillows in the middle of the floor, creep between feather beds on steads with legs insulated by bits of glass, etc. Some children develop elaborate protection in their fancy, as being in a globe of solid steel, a house of rubber or glass, a cellar cave, or having a fantastic system of lightning rods, some of which are amusing. It is pathetic to read of some family groups where the children have inherited this fear from the parents sitting in silent dread, praying or singing hymns, thinking, repeating or reading aloud some of the Biblical descriptions of Sinaitic thunder, or making puny spectral resolves for radical self-reconstruction, which fade in clear sky like ghost fears at dawn. The inefficacy of these terrors in carrying out good resolves, or even in preparations for the next storm, so often planned, is amazing. But it is too much to say, as one does, that those who suffer most from this fear never have lightning rods. Till about eleven, the average child in our reports fears thunder more than lightning, and often enjoys the latter while dreading the former. Some describe with satisfaction and detail the *Aufklärung* of learning that it was the flash and not the noise that was to be feared. A few jump and start with, as they think, no stimulus at all, but from sheer tension.

The fact that this fear leads all the others, and as that yet so small a fraction of one per cent. of deaths are by lightning,



shows that as yet our correspondents have not adjusted their scale of fear to that of danger. Perhaps nowhere is the power of noise to control feeling and also to excite imagery so well seen. This latter differs greatly in intensity and still more in form. In a thunder shower some children persistently think of a battle, bombs bursting, etc., some of the moon or sky cracking. Some conceive the approach of a storm as from above downward toward the earth. Often the imagery involves a firmament, as an arch of sheet iron, boiler metal, zinc, tin, etc., resonant like a sounding-board, over which barrels, balls, wheels, etc., are rolled. Sometimes clouds burst or bunt into each other, or into hills or houses. Loud thunder is described as bearing or pressing down heavily in a mechanical sense. Again it is God, Santa Claus, devils or angels groaning or shouting in an angry voice. All kinds of noisy events and occupations—ice sliding off houses, coal being run in, big mills, machinery, locomotives, etc.,—are fancied, all according to familiar laws of apperception.<sup>1</sup> Vivid lightning in the dark makes an even sharper contrast to the eye than that between thunder and stillness to the ear, but the former can be closed, the latter not. Not only is noise itself more massive and overwhelming, but the imagery of lightning—many matches struck, gas turned on, clouds splitting, big eyes winking, etc.,—is fainter and less varied.

The main point, however, is that thunder gives a profound sense of reality above. For primitive consciousness, belief in and reverence of powers above are never so fervid as in a thunder storm. How such phenomena at Sinai almost created both the religious and political consciousness of the plain dwelling Hebrews, making God more actual, powerful, dreadful, near, etc., Renan has shown at length,<sup>2</sup> while Kühn's great work<sup>3</sup> shows how many beings, motives and story books of the mythology and folk-lore of all the Aryan races are cast in the mould of this imagery. It is perhaps too much to say that we now as little realize the moral, æsthetic and religious capital to be developed at a certain age out of children's feeling for this group of natural phenomena when their psychology shall be adequately known, as Franklin foresaw our age of electricity. But it is certainly superficial to ascribe all these effects to jar and noise, and to note reflex effects while ignoring the larger and deeper phylogenetic factors.

<sup>1</sup> See my "Contents of Children's Minds," *Pedagogical Seminary*, Vol. I, p. 161 *et seq.*

<sup>2</sup> "History of the People of Israel," Vol. I, p. 157 *et seq.*

<sup>3</sup> *Herabkunft des Feuers*.



## XII.

## FEAR OF ANIMALS.

Our returns include every familiar domestic animal, 44 intense fears of wild animals never seen, fears of 12 purely imaginary animals and most of the common small animals, bugs, insects, worms, etc.

1. *F.*, 6. Frightened at a tame bear; did a series of absurd automatic acts, and till 21 imagined bears in every dark, lonely place.
2. *F.*, 19. Read of a panther shot on a forked branch; instantly imagined it a forked branch on the way to school, and could not pass it without great effort.
3. *M.*, 4. For months had bears on the brain, fancying them in the next room.
4. *F.*, 9. Was long haunted by a purely imaginary lion.
5. *F.*, 18. Denies knowing any fear save that of cows.
6. *F.*, 26. Can never walk in any fields for fear of cows or bulls, and used to dream of supernatural ones.
7. *F.*, 5. Feared to drink milk after seeing it drawn from a cow.
8. *F.*, 18. Dreads everything cow-colored in the fields, and if cows are seen in the distance climbs on the wall and prays, but has never been pursued or noticed.
9. *M.*, 11. Had for years fear of being carried off by an eagle.
10. *M.*, 7. Had for a period of months tigers on the brain.
11. *M.*, 4, and *M.*, 7. Long thought, talked, dreamed of lions, which they imagined everywhere, and had monstrous ideas.
12. *F.* Two girls, four and five, were terrified at a man named Wolf, and fancied all his features wolfish.
13. *M.*, 12. After reading of wolves in Russia, he could not enter a dark room.
14. *F.*, 22. Imagines wolves' eyes in all dark corners.
15. *M.*, 5. Long believed a big wolf lived under his bed.
16. *M.*, 6. Thought bears dwelt in a dark corner of his room; "they would come to my crib and tell me to stop breathing for a short time, which I did, for though I liked them I was afraid to disobey."
17. *F.*, 17. Has always had, with no ascertainable cause, such fear of horses that she cannot go near them or ride; her thoughts and dreams dwell on runaways, being run over, kicks, bites, etc.
18. *M.*, 7. Has a monstrous idea of sheep, and especially bucks, and dreads them accordingly, thinking they could butt down a stone wall.
19. *M.*, 8. Both admires, fears and fancies amazing stories of a big black woodchuck that has singular fascination for him.
20. *M.*, 6. Has a greatly exaggerated idea of the tusks, power, etc., of wild boars, and cannot hear enough about them.
21. *M.* Elephants are now the fad of my boy, 6, and have been all this year. "I do not know whether he loves or fears them most, but am sure he thinks them higher than man."
22. *M.*, 7. Dreads centaurs, and especially horses that breathe fire, which seem pretty real.

23. *F.*, 17. All nightmares are dog-dreams, as are all her fears by day.

24. *F.*, 22. Says every dog thrills her with a feeling like that Faust felt for the growling dog behind the stove.

25. *F.*, 19. Never hears a dog bark without a shudder of fear, even if away off.

26. *F.*, 16. Does not know whether she has more horror of their uncanny eyes or their dreadful lolling mouths.

27. *F.*, 18. Loves dogs if their backs are towards her, and can stroke them, but from her childhood, if they face her, must fly.

28. *F.*, 8. Calls all dogs to her by pet names, but if they approach her runs.

29. *M.*, 34. Still remembers his childish horror of dogs, because if mad they made men whom they bit creep, bark, bite, and then become dogs.

30. *F.*, 19. Has a phobia for cats because they walk so softly, can jump so far.

31. *F.*, 39. Has always had an almost morbid antipathy for cats; cannot explain it, but fears nothing so much; "they are also disgusting and loathsome."

32. *F.*, 27. Always knows if a cat is in the room, though she does not see it; her terror is beyond control and brings nausea.

33. *F.* From 8 to 12 a lady imagined that if she swallowed a cat's hair a cat would grow inside her, and therefore feared them intensely.

34. *M.*, 25. When four thought he had once been a cat, would turn into one again, drink as they did, etc.

35. *M.*, 19. The horror of cats is that they are sly, noiseless, witch-like, shiny-eyed, and you never know what they will do next.

36. *F.*, 6. One evening fell asleep twice in her chair, and both times as she woke saw the cat just waking and yawning in another chair, and was horrified, thinking the cat had got her breath.

37. *F.* When 3 or 4 a woman feared nothing so much as the end of a cat's tail, which writhed when the cat slept, and she thought would bite.

38. *F.*, 21. The sight of a mouse always gives her hysteria, sometimes for hours, and was the cause of her worst illness; even a toy or candy mouse terrifies.

39. *F.*, 19. And so does their squeak, which often makes her shriek; every one knows it is her weak point.

40. *F.* A live mouse makes a cook weak and sick for the day, and a dead one "queers" her badly.

41. *F.*, 18. When four was given a toy rat; had never seen one before, but screamed, and has never overcome the fear.

42. *F.* Sometimes a sudden fear seizes an English teacher, when walking nights, that there might be a mouse just where she was going to put her foot; she used to pause with foot in air, but now sings to scare it.

43. *M.*, 54. A strong man fears a cat or a mouse worse than death, and will walk far out of his course to avoid a rat; his father was the same, and his brother.

44. *M.* A powerful butcher, if he cuts himself the least bit, faints dead away at the sight of blood.

45. *F.* A college girl has never been able even to think of hideous long-tailed rats without creepy feelings and moving restlessly about, but never had experiences with them.

46. *F.*, 15. Snakes have a wicked look, as if they would enjoy doing evil; they fill her with dread even when dead and pickled in museum cans.

47. *F.*, 16. Searches every article of furniture for snakes in her room every night; she keeps a long stick to feel for them between bed-clothes before getting in; must have the window closed in the second story lest they should creep in, but never had any special fright.

48. *M.*, 16. Feels in his bed nightly for snakes, imagines them winding over chairs, tables, etc.

49. *F.*, 23. Dreads to walk off a path in grass for fear of snakes; she peers around, walks very slowly, scanning each spot, and often jumping at a crooked stick or brown grass.

50. *F.*, 19. In childhood she and her sister had such terror of snakes they could not touch a book that had pictures of them in it.

51. *F.*, 15. Shudders at every rustlingsound in the woods made by the wind in trees, thinking it a rattlesnake.

52. *M.*, 15. Has often declined an invitation to drink, and signed the pledge because of his great horror of snakes.

53. *F.*, 18. Locates her horror of snakes in their eyes, not in their motion or poison.

54. Children often think snakes can stand erect, roll like a hoop, breathe fire, sting with the tail, run up the body, crush, jump, etc.

55. *M.* "My boy's first experience with a snake, age 4, was having a small one coil about his foot; he was not hurt, but screamed with horror, and could never for a year after be left alone."

56. *F.*, 9. Has tried in vain for months to get used to a toy snake.

57. *F.*, 12. Often dreamed of snakes, and then would lie outside her bed, no matter how cold it was.

58. *F.* Adult, has horrid symptoms at everything that creeps or crawls, no matter how small.

59. *F.*, 20. Could never in any way get a caterpillar off her dress; she knows they are harmless, but she is petrified.

60. *F.*, 24. Has cold shudders at everything in the shape of a worm or grub, and almost faints to see people touch earth worms, caterpillars, etc.

61. *F.*, 18. Has always suffered the greatest horror lest worms should touch her.

62. *F.*, 17. Is dizzy, cramped and nauseated at green worms.

63. *F.* A college professor of botany cannot overcome her horror of worms; when botanizing, even a small one makes her grow rigid and scream.

64. *F.*, 19. As a girl she had peculiar horror of earth worms; would run till she dropped if anyone tried to put one on her, screamed and thought she would die if they touched her; now this has faded into a peculiar dislike.

65. *F.*, 27. Fears nothing so much as earth worms; it is in-

stinctive and she knows no cause; it often crops up at night, when she must press the clothes up around her neck lest they get down her back.

66. *M.*, 15. Dreads spiders most; feels creepy to touch their webs; fears they may drop on him at night, etc.

67. *F.*, 19. The greatest childish fear was that, like Miss Muffet, a spider, the image of which was dreadful, should sit by her.

68. *F.*, 20. Could never sweep down cobwebs for fear.

69. *F.*, 17. When she found they had stopped the blood-flow from her cut finger with a cobweb, her terror was extreme; she daily expected death.

70. *M.*, 3. Was stung by a bee, and for a month after would not eat cake with raisins, watermelons, etc.

71. *F.* A young college woman pretends to like to handle worms, bugs, etc., but no one can know how she loathes them all, and always shall.

72. *M.*, 14. Imagined rose bugs crawling on him, and repeatedly stripped and found none.

73. Scores of girls and women, and not a few boys, describe special and greatly exaggerated horrors of bugs, mosquitoes, bees, wasps, ants, vermin, roaches, and many other things that crawl or buzz.

74. *F.* One girl cannot control her nerves if flies often light on her, and devises elaborate means of keeping them off.

75. Two that chronically imagine them where they are not.

76. One is nervous at everything that hums and buzzes.

77. Often very superior intelligence is assigned to animals; they hear our language and have one of their own, hence the fear.

78. Two fears specialize on moths, one on blood-suckers, two on newts; one could not bear to see fish.

79. *M.*, 6. Refused water for two weeks because he had heard of animalculæ.

80. Many fear fur rugs, robes, garments, etc.

81. Nearly all children pass through a period of fear of dogs.

82. Four children have special fears of small birds, while crow, hawk, hen, goose, turkey, and especially owl, are often dreaded.

83. *M.*, 6. Two boys often got on their knees and growled like lions, to each other's great terror.

84. Often it is a peculiar look in the face of the cow, sheep, horse, dog, etc., that excites the fear.

85. The terror of very young children at the first sight of even small animals is often intense; in three cases this occurred with toads; in two with very young chickens; in one with a caged mouse; one with a goat; one with a turtle.

86. *F.*, 19. Feared animal pictures so that it destroyed her interest in geography.

87. *F.*, 19. The most terrible fear was that a sparrow might light near her.

88. *F.*, 17. Never can look on the parts of animals in the physiology class, and the thought of killing even a fly makes her shudder.

89. *F.*, 13. Cloud animals are the worst.

90. *F.*, 7. The greatest fear is for the noise of a whip-poor-will.

These samples from the 1,486 fears of animals in Table I, which altogether make our largest group, illustrate some of its chief features. Totemistic tendencies appear in 3, 11, 19, 20, etc.; fetichism in 25, 83, 86, 88; various superstitions in 22, 24, 29, 33, 36, 67, 81; remote associations in 7, 8, 12, 41, 46, 50, 51, 69, 70, 71, 79, 84; specialized fears in 3, 10, 21, 25, 62, 64, 65, 66, 67, 73, 78, 81, 85, 88; exaggeration of animals' size and power in 6, 9, 11, 18, 20, 54, 77. Certain animals may be fancied as very near and only half feared, 3, 15, 16; and about as real as some of the darkness cases, VIII, 31, 37, 38. The onset of the fear may be sudden and spontaneous, 41, 64, and may involve imaginary touch, 72, 75.

Fears of reptiles lead all others, and snakes, which have played such a part in early religions<sup>1</sup>, and of which all known species of ape have such deadly fear, are first of all. Fear of mice, worms and insects is so strong, compared with fear of great and dangerous animals, as to suggest that, just as slight but certain penalties are better deterrents of crime than uncertain great ones, so our nerves have been more affected by common stings and bites of vermin and things that crawl and hum than by possible death from beasts of prey. The great sensory disturbance of minimal of tickle-touches is probably also a factor. The animal world is so much larger and more diverse than the human in features, forms and acts, while animal traits and expressions are so easily detected in men, and *vice versa*, that the child comes into a far larger world in knowing animals. Æsthetic, moral and physical qualities are isolated, magnified and better understood. Sympathies are enlarged, a background and a key are given to a knowledge of some of the basal traits of human nature. Yet frequent as are the shying and novelties, and inveterate as are some of these old and rapidly decadent fears, the love and interest of all normal children in animals are far greater, and the pedagogic value of wide acquaintance with many forms of animal life, low and high, is invaluable. The vast diversity of the world of instinct, with its marvelous plasticity with which it fits and fills every possibility of life, by such a vast variety of habits, is more akin to childhood than to adults, and is one of the best possible schools for sympathy, and not a few of the more innate powers of the soul. Much that makes the latter good or great rests on and finds its explanation in animal instincts. The more I study the feeling of children for animals, the less I can agree with Sully, Compayrè and others

<sup>1</sup>See Fergusson, "Tree and Serpent Worship."

that the hypothesis of ancestral transmission is not needed here. More than many others, these fears seem like lapsed reflexes, fragments and relics of psychic states and acts which are now rarely seen in all their former vigor, and which neither the individual life of the child nor even present conditions can wholly explain. Very far from asserting that any of the fears of the cat, dog and cow class can be proven to be older than domestication, or that even the smallest root of the snake fears runs back to the tertiary age of reptiles, etc., it still seems wise to keep this larger solution, to which Darwin was so strongly attached, open, and to push on further and more detailed studies of this greatest but, perhaps, most rapidly vanishing of all our fear groups.

Meanwhile our data permit us to look a little more closely at a few of the many points suggested here in the following:

### XIII.

#### FEAR OF EYES.

Forty-seven cases, suggesting the term ommaphobia as convenient.

1. Nine girls fear big eyes.
2. *F.*, 6. Was long terrified at a silver pepper-pot in the shape of an owl, with its fiery-red eyes fixed on vacancy.
3. *F.*, 9. Feared the bureau where an uncle kept his glass eye.
4. *F.*, 8. Loves to frighten herself when alone before a mirror, with wide eyes fixed on those of her own image, till the cold shivers run up and down her back, and she has to hide her head to blot out her wild terror.
5. *F.*, 6. Could not hear or play "Red Riding Hood" unless they would promise that the wolf should not make big eyes.
6. *F.*, 17. Once at table glanced at a window, and thought she saw a Turk with very large eyes gazing steadily at her; was nearly convulsed, and has never got over it.
7. *F.*, 5. Saw some eyes in the garden that shone and seemed fiery, and up to 16 the words "shiny eyes" would quell her and make her shake.
8. *F.*, 21. Has for years been greatly troubled by the fear of seeing eyes looking in at windows, but can assign no cause.
9. *F.*, 19. As a child used to see big eyes and sometimes hideous faces staring at her just as she was going to sleep; the more she covered her head and tried not to see, the more dreadfully they peered at her; she can still have no one make big eyes at her.
10. Four dolls with lost or disfigured eyes became objects of fright.
11. *F.*, 17. Has from childhood the fear that any ill-looking old woman may look her in the eyes and bewitch her.
12. *F.*, 17. While hearing a ghost story, saw her father in the next room making big eyes at her through the glass door; she



turned white, became motionless, and long after was nervous and jerky at every little noise.

13. *F.*, 17. Knows a person whose eyes always give her a very creepy feeling, and whom she especially dreaded to meet after dark.

14. *F.*, 10. Has an almost uncontrollable fear of a colored woman who rolls her chalky eyes.

15. *F.*, 7. Suffered by spells day and night for fear of the eyes of a Bible picture of a bad angel.

16. *F.*, 10. Was long frightened at the eyes of a picture hung on the wall, which followed her to every corner till fright yielded to anger.

17. *F.*, 14. Is always a little afraid of people with prominent eyes.

18. Most children cannot bear to be watched, looked at or stared at.

19. An infant had long played with a dog, till one day he gazed into its eye and caught a panic, which made him shun it for weeks.

20. *M.*, 6. Saw the eyes of his cat shine in the cellar, and showed great fear.

21. The words, "big eyes," were for years, 4 to 7, sufficient to make an otherwise brave boy run to his mother, or scream in the dark.

22. One teacher thinks the eye the chief agent in school discipline.

23. One or more children each dread eyes that are unusually mobile, or that look at them very askance, or show much white.

24. More specify horror at rolled-up or corpse-like eyes.

25. Small eyes frighten some.

26. *F.*, 29. Is especially frightened by some people because she thinks a second face is looking through the eyes of a first person; at night she sometimes sees imaginary faces in the dark gazing at her with strangely-knowing eyes, and is "occasionally startled by a peculiar look in the eyes of a person I am addressing, as if there was another soul behind who knew me."

The eye, which is the most mobile of our features, can open and shut, is incessantly changing the aperture of its pupil, so that this is almost as sensitive a register of psychic change as the knee-jerk, bulges forward and sinks back with changing attention, corneal tension, so that it grows bright and dull, and with its color contrasts, etc., is naturally the first object of visual interest to the child. Froebel signalizes the infant's first gaze into its mother's eyes as an important stage of psychic growth. The eye is the first feature to appear in children's drawings.<sup>1</sup> Young children look the speaker in the eye and rarely in the mouth. Unlike other senses the eye's first interest is in another eye, and Dr. Drew<sup>2</sup> found in 356 students' love poems the charm of eyes was mentioned

<sup>1</sup>See Dr. Lukens, *Ped. Sem.*, IV, p. 79 *et seq.*

<sup>2</sup>*Ped Sem.*, Vol. II, p. 504.

ninety-one times, leading by far all other features. Eyes hypnotize; a staring test is really a battle of two wills, and in older children to gaze too steadfastly marks insensitiveness. So identical is commonly the focus of vision with that of attention that to be looked at makes children conscious and constrained, and they very early learn to know when they are looked at, often dread even God as a spy. The gaze anticipates action, and is seen, *e. g.*, in stalking. For every animal that is attacked or preyed upon, the critical moments of its life, and those that summon its greatest energy, are those between being seen by its enemy and the seizing, fight or flight that follow. Instinct first looks to the eye for signs of evil or good intent, and the latter have to be slowly learned, for the slightest novelty here was often the most pressing of danger signals. The big eyes that subdue naughty children, illustrate tales of big animals, goblins or witches, etc., must owe some of their terrors to ancestral reverberations from the long ages during which man struggled for existence with animals with big or strange eyes and teeth, and from the long war of all against all within his own species. Savages depict their deities with awful eyes, and the collections of their totem-posts, masks and rude drawings show that, perhaps, next to teeth, eyes have most power to conjure fear. I once made notes, many years ago, on a case of a young woman in the Baltimore City Hospital for the Insane, who suffered for months from the fixed delusion of a monster with dreadful green eyes in a glass sphere, and of another man with imperfect sight, who thought the sun a malignant cyclopean eye of a deity about to eat his human children as a punishment for their sins.

#### XIV.

##### FEAR OF TEETH: ODONTOPHOBIA.

1. Four children cry with fear if they see false teeth move.
2. Seven showed signs of fear when they first saw people laugh.
3. Two would not go near a relative who had lost one or more teeth.
4. Others fear people who show teeth unusually broad, long, sharp or serrated.
5. Big, prominent or irregular teeth sometimes cause adults to be feared.
6. It would seem from several cases that the grin tends first to be feared, and that only later does pleasure come to be associated with it.
7. *F.*, 15. Always hated people whose eye teeth looked different from the others.
8. *F.*, 14. Could not bring herself to touch another's teeth.

9. *F.* Three girls under 4 would not kiss people because of peculiar teeth.

10. *F.*, 19. Is always a little anxious lest a friend should smile and spoil everything.

11. *F.*, 18. Cannot like those who show the back teeth when they smile.

12. To show and gnash or grind the teeth terrifies three small children.

13. *F.*, 3. Cannot learn biting games where hard teeth touch soft flesh; the rare pleasure often shown in such plays is sometimes not far from fear, and like so many other things owes its chief charm to the courage that reduces fear to a plaything.

14. *F.*, 17. Is still nervous to hear teeth grind or clash together.

15. *F.*, 19. Thinks people should be taught to smile agreeably and show their teeth rightly.

16. *F.*, 4. Is afraid to go near a drawer in which her mother's false teeth are kept.

17. *F.*, 5. Fears to enter a room where stands a small idol with horrid fangs.

18. *M.* A dying man in his delirium expressed terror of a half shut melodeon, calling the 'keys teeth; his daughter, who was present, reports a long uncanny feeling, not only for that melodeon, but all keyed instruments.

The entrance to the alimentary canal must have been the object of supreme fear wherever the law eat or be eaten has reigned. One primal element in the charm of the kiss may have been the mutual pledge and faith that in the place of supreme fear love reigns. The repellant element may originally have been stronger than the attraction. The charm of mouth as well as teeth, now so great for amorists, must have been secondary, and interest in all their movements, positions and shapes may have arisen out of the slow conquering of this archaic dread.

## XV.

### FEAR OF FUR: DORAPHOBIA.

Of this I have 111 well developed cases, 11 of which are one year old or under, 15 of which are between one and two, 19 between two and three, 7 between three and four, 10 between four and five, 7 between five and six, and the rest later or with age not given. The following abridged cases illustrate these returns:

1. *M.*, 6 mos. First touched a fur muff, screamed and cried so hard we almost feared he could not get his breath; his fear was overcome by patience when he was 3.

2. *M.*, 7 mos. Threw up his arms and screamed loudly with fright when his sister playfully shook a muff at him; months later he was induced to touch it, but this revived his old fear.

3. F., 8 mos. Seeing a boa, put up her hands and cried; it looked a little like a gray cat she feared.

4. M., 8 mos. Had what seemed to be an instinctive fear of neck scarf seen for the first time; no association with animals known.

5. M., 11 mos. Shrank and cried at the approach of an old friend with a fur trimmed coat; when this was removed fear vanished.

6. F., 1. Was run over by a big dog, and feared every kind of fur long afterward; in 5 cases this association with a fright from dogs, cats or other animals is the obvious source of the fear.

7. M., 1. Cannot touch a sheepskin rug without horror, but lies on it all right unless his hands feel it.

8. F., 16 mos. Showed instant terror on touching the curly hair of a new doll, but was very fond of bald-headed ones; she could never wear a fur cap or trimmings.

9. Six children expressly associate biting with the touch of fur.

10. Three obviously fear the blackness of fur, like seal; but—

11. There are two good cases of early dread of white furs.

12. M., 2. Was always "deathly afraid of the least little bit of fur;" he never would go near his mother when she wore a feathery white Angora bonnet.

13. Three cases report fur apparel as abandoned for children on account of their great fear of it.

14. One writes if the cat is thought scratchy, or the child has had unpleasant experiences with animals, they fear fur.

15. Eleven cases express the opinion that this fear was instinctive.

16. Three saw it in young children who had never seen even a dog or cat.

17. F., 2. The fear is not looking at fur, but if she touches anything fuzzy or woolly, she shrieks with terror.

18. F., 3. Caught horror of all furs from visiting a menagerie.

19. F., 13. Always shuddered at everything furry.

20. F. A single hair upon her dress still gives her a strong creepy feeling.

21. F., 4. Fears only black furs. And another fears only white and gray.

22. F., 4. Fears only mottled fur.

23. Two report love of looking at fur, but dread of touching it.

24. F., 14. Long had a special horror of seeing fur parted or blown so as to show the skin beneath.

25. F., 5. Dreads only coarse or long fur.

26. F., 14. Reports early dread of buffalo robes, of touching cows or horses, because they had hair like bears, which she did not outgrow until 12.

27. F., 16. Only outgrew this fear when presented with a fur jacket.

28. M., 4. Shows his horror of touching fur by putting both hands behind him and spitting vigorously.

29. F., 5. Cannot be induced to touch cotton or have it near her, even calling it "kitty."

30. F., 8. Associated fur and musk in her fear.

31. *M.*, 8. Was cured of this fear by seeing a cow killed and skinned.

32. *F.*, 17. Still has, and always did, a violent dislike of having fur touch her skin; it produces a strong feeling she can only describe as "queer."

33. No insects excite it, even in crawling, except fuzzy caterpillars.

34. Several report more or less strong dislike of sleeping between blankets.

35. *F.*, 14. Has a horror of wool, and will not wear it in inner or outer garments.

36. *F.*, 15. I can never bear to touch velvet, peaches, or anything fuzzy; sometimes they suggest dirt and disease.

37. *F.*, 16. Dreads to touch peaches, although very fond of them, until another has pared them.

38. *F.* A woman cannot wear mittens; when a child a nice pair of white ones were made for her, but at the point a hair was knitted in with the yarn; this sickened her so that no pair has gone on her hands since.

Sometimes this fear seems to be aroused chiefly or only by touch, 1, 7, 8, 23, 26, 32, 33, and to be irradiated to blankets, feathers, velvet, etc., 29, 34, 35, 36, 37, or even to a single hair, 20, 38. This involves the strange tickle sense and suggests it as a cause. There is a novelty about the touch of fur, but whether this and such associations as 9 explain all or not, we do not know. In 2, 5, and also in 12, 28, 29, sight alone seems concerned. Some love to look at, but cannot touch it, 17, 23. Painful experience is the chief factor in many cases, 3, 6, 14, 18, but denied in more, 4, 15, 16. It may be associated with biting, 9; color, 10, 11; musk, 30; dirt, 36; be specialized to fear of only black, 21, or mottled fur, 22; to parts showing the skin beneath, 24, or to coarse fur, 25, 26. Perhaps it is really the far more common love of fur that most needs explanation, but both this love and fear are so strong and instinctive that they can hardly be fully accounted for without recourse to a time when association with animals was far closer than now, or perhaps when our remote ancestors were hairy.

## XVI.

### FEAR OF FEATHERS.

1. *M.*, 2. Is reported as always afraid of feathers, especially lest they should get on him; a bit of down one day came out of the quilt and floated off, while he was stiff with fear.

2. *F.*, 2. Screamed with fear; this was noticed several times.

3. *M.*, 3. Would never go near any kind of feather, and his fear was made worse by often being teased with one.

4. *F.*, 18. Dreaded feathers up to 5; as one blew past her in the

hall she screamed, ran, fell, and only very slowly learned that they were harmless and not alive.

5. *F.*, 4. A feather in the cupboard is sure to keep her out of mischief in it, where she is very fond of going.

6. *M.*, 15. "My very first fear of feathers was at 3, especially soft, fuzzy, gray ones.

7. "The nurse would keep me in a room by putting a feather in the keyhole; if I wanted to come in, and a feather was on the door, I would just stand and yell."

8. *F.*, 2. Saw a feather come out of a pillow, and had such a paroxysm of fear that at last all pillows had to be removed from her bed for some time.

9. *F.*, 24. Knows a poor mite of a girl who turns pale at sight of feathers in a ladies' hat.

10. A teacher could never touch cotton or feathers, or go near a closet where they were kept.

11. *F.* If she passed through a room containing either, she hastened and did not look that way.

12. *F.* Another girl has a horror if the least piece of thread or fuzz gets on her dress; holds her hands far away and screams until it is removed.

13. *F.* An English woman writes: "When 1 or 2 I had great horror of feathers of any kind, if loose, but not when growing on birds; I once sat on the floor rigid because a bit of eider-down from a quilt moved towards me."

14. *F.*, 4. Was greatly terrified by a leaf floating in the bath tub.

15. *F.*, 3. Has great awe of the feather duster.

16. *M.*, 18 mos. A mother writes: "If I have a feather my boy will do anything I want."

17. Another lays a feather on anything she does not wish her child to touch.

Most, if not all these cases, seem sufficiently explained by what the child thinks to be the power of self-motion, association with insects, tickling, etc. Self-motion is the most distinctive feature of animal life, and Darwin, Brooks and others have described the fright of dogs at things moved by a very light breeze or invisible string.

## XVII.

### SPECIAL FEARS OF PERSONS.

1. *F.*, 16. Never can see strangers without flushing and stammering.

2. *F.*, 44. Has never quite recovered from the painful bashfulness of childhood.

3. *F.*, 46. Can never step up and meet strangers cordially; this is worse with the opposite sex, as less sympathetic and more critical; can almost never look people in the eye; dreads a stare instead of a smile.



4. *F.* The great dread of an English girl was being taken from the nursery into the drawing room among the grown-ups.

5. *F.* 7. Laughs and cries hysterically by turns if a person, or even an animal, fixes his eyes upon her.

6. *M.* 14. Would go around through the fields half a mile to avoid meeting a man.

7. *F.* 30. English, always had fear of grave, solemn people, but most intensely so of those with positive, decided or sharp manners.

8. *F.* 23. Felt tiny, insignificant and terrified before her older cousins; was often so restrained and oppressed that she would break out with some hideously gawky or desperate act or speech, or even a lie to assert herself.

9. *M.* 17. "Never dared go anywhere or do anything for fear of being laughed at; would even say white was black."

10. *M.* 10. Played with girls, and never with boys, for fear he should see them fight.

11. *F.* 19. From 8 to 12 had a dreadful fear of girls from 15 to 16, because they had such superior ways and looked down on little girls.

12. *F.* Some little girls fear all boys, either because they may not be kind to them, or will talk about them, or do not care for what they do.

13. *M.* 14. Is so shy that he does not speak to a girl lest he should make a fool of himself, or they should laugh; it makes him think too much beforehand what he is about, and what he will do and say.

14. *M.* 18. Always had great dread of his father, disliked his presence; could not be free, and was made nervous and stupid.

15. *F.* 31. Is frantic if blamed; her father's displeasure and standards for her always took the place of conscience, and her impulse still is to do what will not displease others rather than to do right.

16. *F.* 52. Could never be at ease with those of whose kindly disposition she was not well assured, and would still sacrifice almost my good or gain rather than be blamed.

17. *F.* 27. Once found her love of a teacher changing without cause to fear; her hands would grow cold or wet, and her eyes twitch and turn away if they tried to meet the teacher's; sleep was broken, and she had to leave school a year; she thought the fear to be nervous self-consciousness.

18. *F.* At 7 or 8 a cultivated lady used to think several old women witches and their eyes dangerous.

19. *M.* 6. The chief fear was that older boys would make their hands like claws and claw at him.

20. *F.* 42. When 12 or 14 used often to have a sudden sense that there was some one in the room; she would turn quickly around; often thought she saw a shadow vanishing, and felt sure she was not alone.

21. *M.* 12. If the door knob did not turn felt sure some dreadful person was holding it without.

Beginning with animals, 19, children's fears of persons are often at first chiefly directed to black, lame, ugly, or espe-

cially deformed people, to gypsies, rag men, Chinamen, policemen, coal men, tramps, tinkers, doctors, teachers, peddlers, and often extend to almost all strangers. They dread people with decided, 7, or superior, 8, manners; those who dominate and dwarf them, 15, 16; are often suspicious of the other sex, 11, 12, 13; develop horror of blame, 16, or ridicule, 9, and perhaps shrink from everybody of whose good will they are not well assured, 16.

If there ever was a time when, as a rule, all strangers were dangerous, it was an age of war of all against all, such as Hobbes postulates, or of a severe struggle for existence among men. Many still live by the principle of treating even friends as if they might become enemies. In the country, with sparse population, awe of strangers, so obliterated in the impudent city gamin, is still seen and in all degrees and forms. With this group of fears more than with any others, I think, we must connect the phenomena of blushing. From returns to another syllabus, to be reported on later, it appears that no part of the body is exempt from blushing. The blush storm may be immediate or long delayed, may start in sharply defined points and spread, often passes from the epigastrium or even the feet upward, like an aura, may alternate with pallor, be so intense as to cause a rash afterward, and, in rare cases, it may amount almost to vesication; be so inordinate as to make even men recluses and compel them to change their vocations. The heart beats violently, there may be constriction in the chest and even globus. The mind is confused, there is a sense of helplessness, weakness, tremors, perspiration, the eyes blink, look down or sideways, and, in some cases, tears are shed; there is tinnitus, twitching, awkward movements, the breath stops, and sometimes the face is covered and the blusher turns away in flight.<sup>1</sup> Now, most of these symptoms are those of fear. In some languages the word for blushing and shame is the same, as in the Swedish *blygsel*, and Oken, long ago called shame, "a partial fear."<sup>2</sup> Nearly if not quite all our reactions to an intense blush are the same as those that follow a fright.

The most blushes reported are directly or indirectly related to sex. Women blush far more and far later in life than men, and most of all in adolescent years, and chiefly at the mention, in the presence or at the advances of the other sex. That

<sup>1</sup> See "Morbidity Blushing: its Pathology and Treatment," by H. Campbell, M. D., in *Wood's Med. and Surg. Monographs*, 1890. Also, Camille Melinard in the *Chautauquan*, 1893.

<sup>2</sup> "Naturgeschichte," IV, S. 205.

this diathesis originated in part from an ancestral sex fear is entirely consistent with the fact that such blushes may be also now often attended with pleasure. Shyness, coyness, maidenly modesty, owe their charm to the female reluctance born of fear. Even if these blushes are a widely irradiated or penumbral glow of sexual erethism, it is the inhibition of fear that must have been the chief agent in checking and irradiating or discentralized them far from acts or organs, and these fears of observation, of consequences, of betrayal of inclination, operate on both sexes, and may extend even to thoughts that cause blushing in solitude. Even the blush at compliment may have been because once the sense of being admired was associated with greater danger. Other causes of blushing most often mentioned in our returns are: being looked at, laughed at, accused, suspected, native bashfulness, awkwardness, breach of etiquette, being talked of, criticised, and even the fear of blushing. Self-consciousness of body or mind arises, and people become so sensitive to the opinions of others that they cannot be natural in the presence of those of whose sympathy and good opinion they are not well assured. They must be among friends, whose very thoughts they do not fear, or the vaso-motor system still reverberates with the echo of old dreads of alien faces long after the voluntary muscles or their cerebral centres need not be flushed for flight or fight. That this is in accordance with the law of the stages of forgetting, I shall try to show later. The blush of surprise and shock has a very different origin, and that of pleasure is to be explained in a still more different way. We attempt here no theory of blushing generally, but only of one element of the problem. Whatever may be thought of our plea for paleopsychic elements in explaining other groups of fears, we surely have here phenomena which no one would think adequately accounted for by individual experience. That there are instinctive fears as well as instinctive attractions for strangers, few will doubt.

## XVIII.

### FEAR OF SOLITUDE.

1. *F.*, 22. Up to 16 could never be left alone, and never was. I was not usually afraid, but had a lonely feeling that was simply dreadful.

2. *F.*, 17. From about 8 to 12 had a horror of even momentary solitude; *e. g.*, in picking berries, if for an instant she lost sight of her mates, she would scream and sometimes lose consciousness.

3. *F.*, 21. Has always loved to wander off into lonely places in

the country, yet sometimes a creepy feeling of solitude springs upon her and she is almost paralyzed with dread.

4. *F.*, 23. All through her school days had a nameless dread of being left alone in the house, as she often was; everything within seemed gloomy and awful. Every few minutes she would go out and look every way to see if someone was not coming. Every effort at diversion was vain. The clock ticked so loud that she could feel the silence, which almost stunned her. "It felt as if everybody was dead. I would sing and do the most unusual things, watch the clock, the approach of night, dread every preposterous accident, seek companionship with the animals in the barn, and even with the flowers in the garden."

5. *F.*, 17. Long suffered from panics that all her friends and relatives would desert her.

6. *M.*, 16. Got a panic at the age of 7 that his parents were planning to run away from him; this haunted him for four weeks; he would wake up nights thinking they had gone, etc.

7. *F.*, 7. Often used to wake up dreaming that she was alone in the house; she would scream, but never told till in answer to this syllabus.

8. *F.*, 20. Instead of being filled with the terror of solitary places, which clouded all her childhood, has now come to find a peculiar and indescribable charm in forest gloom, gorges and every kind of solitary place.

9. *F.* An English woman, after being for sometime absorbed in reading, often suddenly awakens to a sense that she is alone, and perhaps night coming on, although the house is full of people. "At such moments a feeling of unseen beings crowding around would overcome me. I would often stand in the middle of the room unable to move till, with a great effort, I could just reach the door and fly, not daring to look behind."

Sometimes the sense of being alone seems to spring more or less suddenly upon the mind as if it awoke spontaneously to it, as in 3 and 9; a little solitude may be intolerable, 2 and 4; friends may desert us, 5; mates run away from us, 6; dreamed solitude brings a panic, 7; companionship with flowers and animals is consoling to four in a way that suggests the palpitating interest of the imprisoned Picciola in a plant, the juice of which saved his life, and Silvio Pellico's love of the ants, flies and spiders in his cell. Gregarious as man is, every individuality grows solitary in proportion as it becomes defined, and great and new thoughts, as Zimmermann and Alger have so well shown, make men feel apart. The desert and its penance of solitude has always been the bulwark of great souls nursing great thoughts, but weaker souls, Trappists, Caspar Hausers, etc., it stultifies. Children during their long infancy have been most of all animals dependent on others, and in their horror of being alone we see, often in arrested and hypertrophied form, the fear that has much to do in making the fashions, parties, and sects of the most imitative of all creatures.

## XIX.

## FEAR OF DEATH.

1. *F.*, 25. Up to 14 could never think of death without tears. It would often come over me with tremendous force what an awful thing death is; it cannot, must not be, that we must all die and give up this beautiful life, and I would cry and cry.

2. *M.*, 6. Used to cry hopelessly and with absolute and wild abandon because he must die. It was far worse nights.

3. *M.*, 15. Deems death so unspeakably terrible that he cannot speak or think of it with steady voice.

4. *M.*, 46. A clergyman has been haunted and hampered all his life with the thought of death; his only consolation is the hope that he may live to Christ's second coming and not taste death.

5. *M.*, 9. Dreads death because "you can't see, hear, think, or have anything to eat."

6. *F.*, 7. Had such morbid terror of death from her "Now I lay me" that each night she asked all to forgive all her chance sins, and suffered terrors of hell and judgment day.

7. *F.*, 7. I saw two sweet girls watching a man on a high roof. One said: "Oh, I wish he would fall right down backwards and kill himself;" "And they pick him up all bloody," giggled the other; "His bones all broke," said the first; "And put him in a black box in the ground," said the second; "And all his children cry," said No. 1; "And starve to death," added the other. They were getting more excited, awed, and spoke lower as they passed out of my hearing.

8. *F.*, 8. At once showed great fear of her sick sister when told she might die.

9. *F.*, 17. The horror of a room where any one has died is intolerable.

10. *M.*, 6. Can go into a room where a corpse is and even touch it, "because it is not so dead as when buried."

11. *M.*, 10. Kissed his mother's corpse without reluctance, but jumped back when his lips felt it cold, and first then had horror of corpses that lasted years.

12. *F.*, 19. Dreads death almost hysterically, but only in revivals.

13. *F.*, 34. Has always felt death to be better than all, and the sight of death does not weaken the pleasure of anticipating it as the best thing life has to offer; this sense that it is a triumph is not born of theology or distaste for life, for health, surroundings, joy of life have always been the best; there is no thought of anything after life, but death itself she feels a consummation devoutly to be wished.

14. *M.*, 30. Has twice been at the point of death, but was perfectly reconciled and had no fear.

15. *M.*, 25. Struggled against drowning, but sank satisfied and curious to learn the new experience of death; after rescue the fear was intense.

16. *F.*, 7. Her mother was chopping meat and fell in a faint; she sprang to chopping, saying: "Now she is dead, and I must chop meat."

17. *M.* From 18 to 25 was constantly saying to himself, "Let's see if I can stand the thought of death now." Its horror to him is in its unreasonableness; it was a melancholy and not a terror.

18. *F.* 45. Dreads death most in winter, and always prays to live till spring; fall is bad enough, but to be buried in snow is an intolerable thought.

19. *M.* 28. Dwells much on death, which he associates with eternity of time and space; to live on and on is a thought absolutely not to be endured; to think of infinite time (he is a student of philosophy) makes a lump rise in his throat.

20. *F.* 6. Ponders death, and gets so excited and afraid that all allusions to the subject in family prayers, reading, etc., must be avoided.

21. *F.* 28. When 9 overheard the doctor tell her mother she could not live to grow up; she said nothing, but grew serious, dwelt on it, applied all details to her own case; first thought 10 would be "grown up," then 12, 14, 18, etc., and is now well, but sadder than she should be.

22. *F.* 23. Has a chronic fear that her father is to die; although he is well, she fancies all the details and suffers over and over as much as if it were real.

23. *F.* 18. Has spells of fearing her mother will die; it gets worse and worse, and in a few days breaks like an ulcer and vanishes.

24. *F.* From 6 to 9 had a fear that people were to die one by one and that she would be left alone on the earth, and then the end of the world would come when all the rest were gone.

25. *F.* 25. The thought of her own or her friends' death often comes suddenly and persists tenaciously; she sat, *e. g.*, at the age of 13, in church near her sister, when the thought came that she had not moved and was dead; she could not look for fear it was true and grew rigid, when a motion relieved her fear, profuse perspiration followed; this period of clouds and dark ages was ended by putting her trust in God.

26. *F.* 12. Grew so afraid to pass a graveyard on the way to school that she grew sleepless, lost flesh and became literally afraid of her shadow, and was cured slowly by memorizing Longfellow's "God's Acre."

27. *M.* 45. A college professor cannot pass a country graveyard familiar in his boyhood at night without the old panic; he has often tried to force himself to go through it, but desisted because "it would use up too much energy more useful in other ways."

28. *F.* 18. When she became convinced that the person ended when put in the grave and there was no future life, her fears of death, which had been morbid, ceased.

29. *F.* 21. Her mother used to sing, "When this poor lingering, faltering tongue lies silent in the grave"; this gave her a vivid image of her mother in a coffin and a horror of death unfelt before.

30. *M.* A young man could not board in the house with a young lady because she worked in an undertaker's factory.

31. *F.* 2. Saw her mother in her coffin, and this caused life-long horror of all black boxes and even boats, although she retained no memory of her mother alive.



32. *M.*, 10. Decided to go to hell when he died; rubbed brimstone on him to get use to it, etc.

33. *F.*, 18. Feared death because she felt sure she should tire of heaven and visit the other place for change and excitement and find it more painful than she could bear.

Dread of death is apt to focus, now on fear of crape, on touching it, on a black dress, now on hollow eye-sockets, grinning teeth, or matted hair, or again on the creepy feeling of worms, being buried alive and being nailed in, shouting underground for aid, cremation, dread of dying away from home, sudden or slow death, coffin, shroud, etc. The young are apt to fear death for themselves, the old for others. Only eleven reported specific fears of hell. In nine cases religion has removed fear of death, but in far more of our returns it has caused or increased it.

Out of our 299 cases of fear of death, the above are typical, but the reader is commended to a fuller treatment of children's feelings about death by Dr. C. A. Scott,<sup>1</sup> who has had access to these data. Compared with its magnitude this subject is as yet almost unknown. Most young children seem at first to have no instinctive feeling about death, as in 16, which is typical of a large class. The inherited dread of it may be evoked suddenly and almost reflexly by touch, as in 11; may long remain very inadequate, 7, 10, or break out with the greatest intensity, perhaps periodically, 1, 2, 3, 12, 17, 18, 20, 21, 25; burial is often far worse than death, and the fear may extend to the room, 9; very sick people, 8; the employee of an undertaker, 30; graveyards, 26, 27; a black box or boat, 31. It is often chiefly feared for others, 22, 23, 24, 25. It may dismalize life from the most unexpected causes, 6, 21, 29, and be intensified by thoughts of eternity, 19. Sometimes these fears are defied, 32. Cowardice may be cured, 26, or reduced by belief in annihilation, 28, or welcomed as a mere physical consummation, 13. Heaven itself may be dreaded, 19, 33.

The horror of death seems most intense in the years just preceding the great altruistic tide of adolescence, which brings mildly melancholy, *Thanatopsis*' moods of euthanasia, the reaction of which against the predominant selfishness of earlier years may settle into some such form, as 13. I know two academic instructors who take pleasure in following out in thought scientifically the processes of decomposition. One, like Richard Jeffreys, wishes his ashes strewn on many winds and streams, so as to touch nature as widely as possible, and the other watches the flames of a cremation furnace as a kind

<sup>1</sup> AMERICAN JOURNAL OF PSYCHOLOGY, Vol. VIII, 67.

of transfiguration scene or apotheosis. The interest of one in the fates of the physical elements of his own body is great, and, he says, so satisfying and consoling, that anything good which the future may have in store for his soul will be a welcome but not needed surplusage. Perhaps this is seen in 28, which is hardly dread of eternity like 19, or of monotony like 33, and ought not to be psychologically surprising in view of the consolation Buddhists find in the thought of extinction. The development of the doctrine of immortality, and its utilization as a moral motive, vast and preponderating as is the service it has rendered, has also brought a body of terrors, which work havoc with many nervous systems, not tonic enough to react properly to them. How rightly to administer this fear, which has always been one of the chief problems of religion, seems to be looming up again to pedagogy. For practical as well as scientific reasons, further studies are urgently needed here to give eschatological problems a firmer and more natural foundation.

## XX.

### FEAR OF DISEASES.

Children, as is well known, fear all prevalent diseases, and often have long spells of imagining, now one, now another group of symptoms.

1. *F.*, 18. Can discover symptoms of every disease she hears of, and have symptomatic pains anywhere; the word symptoms has a dreadful sound for her, and cancer makes her shiver.

2. *F.*, 20. Strong and normal, has vividly imagined that she had every disease she read of, cancer, pneumonia, consumption and diphtheria being the favorites, with which her imagination became very intimate.

3. *F.*, 18. If she has a pimple or scratch, she thinks it a cancer, feels sick, and sometimes kneels and prays.

4. *F.*, 8. Heard tomatoes caused cancer, and although very fond of them ate none for about two years; later, fearing consumption, and hearing that fatty things cured it, ate fat meat, well oiled lettuce and other loathed things till she was sick.

5. *F.*, 10. Would eat no butter for fear of pimples.

6. *M.*, 15. For years feared his heart would stop beating; was always counting his pulse, fearing it was getting low; starting up at night thinking the end was at hand; avoiding violent exercise, etc.

7. *F.*, 10. For years would eat no candy nor frostings nor sweets; never told why, but now writes it was from fear of kidney disease.

8. *F.*, 15. From a quack circular on skin disease imagined all its symptoms; was miserable, tried dangerous cures, etc.

9. *F.*, 18. Had read of lock-jaw, and thought her jaw getting

stiff if she talked less or had sore throat; when she was nearly dead with diphtheria, she was greatly relieved to be told it was not lock-jaw.

10. *M.*, 22. Life has been colored by fear of trance.

11. *F.*, 18. Fear of fits has done the same.

12. *F.*, 19. Has frantic horror of dirt because it may bring contagious disease.

13. *F.*, 14. Would hold a handkerchief to her nose, run past a house where anyone was sick; never touch a letter containing news of a death, study the direction of the wind, etc., fearing to catch disease.

14. *F.*, 6. Long feared she would burst like Judas Iscariot, and she could see the blood coming out.

15. *F.* A kindergartner hopes heaven will reward her for fighting her uncontrollable aversion for dirty garments and dirty-faced children.

16. *F.*, 12. Who had read of leprosy, thought it appeared in a red spot on her arm; wondered how long before people would find it out, or it would turn white, or the flesh drop off.

17. *F.*, 15. Long fancied she was bleeding at the lungs; would wake up nights tasting blood; formed a bad spitting habit.

18. *F.*, 11. Saw a case of St. Vitus' dance, and was terrified almost into having it.

19. *M.*, 10. Had a too vigorous lecture on catching cold, so that he would not coast nor run lest he should get sweaty; dreaded cold, stayed in, hurt his health.

20. *M.*, 7. Has heard of wounds, and thinks the least bruise or scratch will kill him; is getting too careful of himself.

21. *M.*, 28. An accomplished graduate student of philosophy and a father writes in substance: "The one greatest fear of all my boyhood was connected with my sexual organs; the big boys would expose us little ones, and said mine was too small; I began to brood over this, age 8; felt disgraced, and haunted with forebodings; one day there seemed a very slight inflammation, age 12; I thought I had done a nameless sin, and prayed God to let me get well, which I soon did, but a morbid association between it and a hen's neck long persisted; I read literature on lost manhood, self-abuse, etc.; fancied I had all the diseases, and had committed the unpardonable sin; the first spontaneous emission nearly paralyzed me, but although I found myself still alive, felt that my days were numbered; I corresponded with a quack, and later began to study my urine with great alarm, and found plenty of marks of disease; there were reddish and whitish settlings, lack of color and over color, strong smell and no smell, it was too clear, too thick, too copious, too scanty, or, worst of all, had an iridescent scum; when 14 I gradually settled to the fact that I was sexually abnormal, might possibly live seven years, till 21, and then find what I had heard was a sure cure in marriage; I found encouragement from quack advertisements, which said the wretched beings sometimes held out for years; I lived on, and people said I was in robust health, but it was years before I realized that I was perfectly normal; Bible passages greatly aggravated my fears, such as one in Deut. xxiii, and others; as I look back my entire youth from 6 to 18 was made miserable from lack of knowledge that anyone who knew anything of the nature of puberty might have given; this long sense of defect, dread of operations, shame and worry has left an indelible mark.

These fears sampled from 241 cases show how baseless fears, especially if untold, may modify diet, regimen and health, 4, 5, 6, 7, 19; different diseases are focused on, 2, 6, 8, 9, 10, 12, 16, 18. Case 21 is from a large class which often have painful and unprintable details. Altogether this group brings home to us what is coming to be apparent from several other sources, that all the departments of personal morality can in no way be so effectively taught as from the standpoint of the new hygiene as the science of wholeness or holiness, to which these studies are now broadening. Unlike death there can be no question about the propriety of utilizing to the uttermost these fears if they are wisely shaped to meet the requirements of the new ethics, which I believe is at the door. While some of the old fear groups, like those of animals, are generally declining, dread of death and disease seems on the increase. Animals and even savages are not haunted by these far future fears as we are. The suddenness with which these fears may spring up to overmastering power shows a deep hereditary root copiously watered by superstition. But life was never so rich and joyous as now, and so, by contrast, death never so black. I have personally witnessed a painful and certain death in the midst of health faced with a courage, which, it is no detraction from the praise of it to suggest, must in part have been made possible by heredity from a time of ancient relative indifference to death, before men learned to worry about it and a future state. Before modern medicine and surgery, and nursing too, the association of wounds and disease with death was closer, and forms of illness have increased so that the ratio of illness and invalidism to each death has also increased, and with it dread, and also appreciation of the blessings of health.

That psychic states condition and control health more and more as civilization advances; that attention to any part or function of the body modifies its metabolism so that somatic introspection is fraught with danger of hypochondria; that heart, liver and uro-genital consciousness, etc., illustrate the principle that the weaker an organ is the more it comes to the front, and the healthier it is the less conscious we are of it, and that the imitative instinct is nowhere more richly illustrated than in the field of morbid symptoms,—all are now practically agreed. While utterly rejecting most of the theories and the preposterous claims of Christian science, mind and faith cures, it seems safe to assume that the mind may cure all the diseases it makes. This is no more than Kant held in his essay on "The Might of the Gemüth." If fear of apparitions, noises, or even touches, favors illusions of the senses involved, how much more must fear of the more

subjective sensations symptomatic of disease favor belief in their presence. In states of full euphoria, when we feel the joy of just being alive to transcend the pleasure of every sense, or the gratification of every special desire or ambition; when we best realize the old epigram of Martial that life is not to live, but to be well; when even knowledge, power, sex and fame grow pale beside the feeling of full and abounding life;—this is wholeness, holiness, health, and death and disease never seem so far or so black by contrast. Fear of these, however, which is perhaps the chief fear of adult life, presses upon souls almost in exact proportion to their feebleness. To be weak is to be fearful. Not only were disease and death never before so feared as now, but the imagination, which has created many horrors in the past that the world cannot soon forget, was never more actively creative of spectres of the mind than in this new field, where it checks the free, outdoor hardihood of children and youth, and hedges us about with precautions and things we cannot be, eat, do, attempt, till life is sometimes but a mean and craven fragment of what it might and should be. Many real cures ascribed to the mind, faith, etc., I think we must thus really ascribe to the natural physical regeneration that comes from breaking the insidious pareses of fear.

A class of cases in this group of fears has a peculiar interest as being at the opposite extreme from those of shock in that they supervene so gradually as not to be recognized in the full light of consciousness as existing at all. Over against the traumatic fears, these must be considered as slow, chronic and constitutional. Even if there is a malingering element at first, it is evanescent. The approach has been so gradual and all the processes of restriction of the life-sphere so instinctive and unreflective that the real origin of the fear diseases is unsuspected. As in some geologic processes now active we can study how older formations must have grown, so from these contemporary phenomena we may infer the mode in which some of the more archaic fear-neuroses and psychoses slowly became fastened upon the race. More than any other class, perhaps, such fears are the stigmata of degeneration, and for this reason again, as well as for their cryptogamous nature, harder to cure. But the decadence that begins at the obscure middle level, while less easily exorcisable than fears of the highest level of full consciousness, is of course far more so than those that are of purely somatic origin. What to the ordinary consciousness may well seem a miracle of faith is quite within the domain of psychologic laws now well understood.

## XXI.

## MORAL AND RELIGIOUS FEARS.

1. *M.*, 14. The greatest fears are conscience fears; he believes heaven rewards and punishes our deeds on the spot.

2. *F.*, 14. Used to have dreadful fears of conscience, but has now learned better.

3. *M.*, 10. Put to test his teacher's statement that if he played on Sunday he would get hurt; in doing so he injured his knee, and for ten years kept Sunday.

4. *F.*, 12. Whenever she fears anything, like breaking her doll, she prays about it, and all goes well.

5. *F.*, 12. If she did anything wrong she was sure to meet a policeman, and so became good.

6. *M.*, 9. The dread which he has of the policeman is a good and true index of his conscience.

7. *F.*, 12. If she has done anything wrong she fears the moon will fall on her.

8. *F.*, 13. If she has been naughty she fears a brick will fall on her, or that she will cut herself, or fall from a bridge; this she did not connect with any divine being, but thought the world was made that way.

9. *M.*, 9. Read of the earthquake, and was told it came to punish him; he afterwards put away all his toys over Sunday.

10. *F.*, 16. Is sure to miss every lesson she studies on Sunday.

11. *F.*, 6. Thought every one must cross a chasm over a fire by walking a hair, and kept good so she could get across.

12. *F.*, 45. An English lady was robbed of the joy of childhood by religious fears; finding God did not answer prayer she tried the devil and found him kinder; then had a terror of the unpardonable sin; images of the great white throne, sheep and goats, one taken and the other left, memories of Donati's malignant comet of 1858, imminent dread of the crash of collision, boom of the judgment trump, etc.; after years she slowly developed the thought that she might find some obscure niche where God would overlook her, and when tired of being all alone might find a boy who had also escaped, and they would be forever rich and happy on the abandoned food and goods.

13. *F.*, 19. When in church or company often feels she will say some terribly wicked thing.

14. *F.*, 18. Has a horror that never leaves her lest she should commit some awful sin; this comes out whenever she hears or reads anything particularly horrible.

15. *F.*, 45. Is often seized by the fear that her senses may suddenly leave her, she may hit some one and say or do something terrible; these fears are spasmodic.

16. *F.*, 8. Was so impressed by hearing a minister say that all were like a woman clinging to a cross-shaped rock amidst angry waves in a picture he showed that she got great horror of water, and felt destined to die by drowning.

17. *F.*, 21. Teacher, when 14, found her conscience so troublesome that she finally resolved to kill herself, took a carving knife, slowly made a big hole in her dress, when her courage failed, and



she decided that bad as she was, the world would have to bear with her a while longer.

18. *F.*, 11. Went to camp meeting, joined the church, later thought herself a hypocrite, grew nervous, thin, sleepless, confessed everything she had even thought, imagined the end of all things, and long pondered whether she ought to go with the sheep or goats; finally she dreamed the end came, and the sky was written over with maps and names; she stepped aside into a corner between the good and bad, and was unnoticed; these fears colored her temper and made her selfish.

Little children often think the world is so made that their bad deeds are punished on the spot, 1; by getting hurt, 3; meeting a policeman, 5, 6; having the moon, 7, or a brick, 8, fall on them, or that an earthquake will come, 9, etc. They often test this and find it false, 2, or true, 3, 10. The dread, often spasmodic, of breaking out with bad acts or words, 13, 14, 15, indicates a lack of control, which is often the psycho-neural analogy of the more objectified dread that the elements will break out, and the world end. These probably indicate more morbidity than the religious artefacts seen in 11, 12, 17, 18, although the two are often connected. The tendency to see rewards and punishments in weather, common events, etc., is the root from which has sprung a vast body of religious superstition, but it represents a stage in the development of the moral consciousness that is indispensable to the growth of every conception of the universe as being moral, and the disposition to test it is the same that when grown up suggests the prayer gauge. The pedagogy of ethics and religion waits for us to ascertain how to treat such factors.

Very closely connected with these are the two following great groups :

## XXII.

### END OF THE WORLD.

1. *F.*, 11. Has caught from neighbors the fear that the world will end in 1899; plans to do everything before then, and pictures how the event will occur.

2. *F.*, 33. When 9, caught from Bible prophecies the way of interpreting current events as signs of the end; the world was very wicked, God very angry, the longer the *awful* punishment waited the more dreadful it would be, and the more surely every little sin would be punished; what she liked best made God angriest; this cast a gloom over every day for years.

3. *F.*, 18. No tongue could tell the anguish she suffered from this fear at all the little weather signs; it hurt her health.

4. *F.*, 19. Long saw the end coming when the clouds or moon were red or fire bells rang; this fear was of great value, made her good and always ready to die.

5. *F.*, 22. This horror was intensified because she believed it would come when no one was thinking of it, so felt everything hung on her keeping it steadily in mind, and she always tried to keep awake nights.

6. *M.*, 13. Dreaded it so he felt it was hypocrisy to pray "Thy kingdom come," and so changed it.

7. *F.*, 25. Thought the end would begin with a thunder storm, which would grow intense, and so had horror of these.

8. *F.*, 16. Thought it would develop out of a hot spell.

9. *M.*, 16. Saw signs of it in all the crimes in the newspaper.

10. *M.*, 13. Saw it coming in shooting stars.

11. *F.*, 17. Thought things would freeze up, and so dreaded cold.

12. *M.*, 10. This gave him horror of fires and even matches, lest he might precipitate the end.

13. Fears of celestial collisions are often elaborately developed, and this gives many children intense interest in the weather.

Like XIX and XX, these fears are most frequent from 13 to 18, or during the early stages of the adolescent ferment, and objectify in the most interesting way the instability of its profound transformation.

### XXIII.

#### GHOSTS.

Probably the large majority of children pass at least a stage of fearing ghosts, although we had but 203 good cases.

1. *F.*, 18. As a girl for a time knew, thought, talked of nothing but ghosts; would imagine something heavy moving on her bed, fancy eyes, noises, and re-enact all the stories she had heard in a cold sweat and with hair on end.

2. *F.*, 23. A college girl says no one can ever make me cease to believe in ghosts; I have done so since I was 2, and always shall.

3. *F.*, 17. When she hears people say there are no ghosts she knows better, for she has seen one.

4. *F.*, 17. Thought the house full of ghosts, that they were always moving on the stairs and in the halls, till she grew sickly; finally the servant who taught her was discharged; her father took her to a meeting of Spiritualists, and "they let him talk to his dead daughter Bertha through a tube; now he never had a daughter Bertha, and this cured me."

5. *F.*, 23. When 8 was told she might meet the spirit of her mother, who died when she was 2 days old; she longed to see her, but was so afraid that thereafter she would not look at her picture lest she should see her ghost, and everything about death and her mother became fearful.

These fears must have taken their rise in the early human period. Dreams, hypnagogic images, trances, entoptic projections upon the dimness of night, the dominance of retinal interpretation by other senses, the tricks of early priestcraft,

the anthropomorphic vigor of primitive, visually thought imagination, and we know not what other factors of hope, love and fear have created a world of beings, more or less belief in which is now a stage in the development of nearly every human being, and the energy of persistence of which in the most cultured of adult minds now has the most refined and valuable documentation in the collections of the English Psychic-Research Society. For children who live with imaginary companions, for people who are haunted with a "sense of presence," or who have seen ghosts, 2, 3, all disillusioning tests like 4 are idle. That to the pre-potent bias which we all inherit from a savage human ancestry and which haunts the very nerves and pulses of the most cultured to believe in ghosts, is now, in these later psychogenic ages, added the passion for individual survival, which, although often harried by science, has steadily increased with every step in the progress of personal liberty, and with the growing sense of the worth of the individual in the universe and the integrity of consciousness, so that to use Kant's phrase, the dreams of sight-seers are now explained by the dreams of metaphysicians;—this has caused one of the most formidable of all presuppositions, the proper comprehension and utilization of which seems to await the avatar of some great genius in the psychopedagogico-religious field who shall reformulate the whole doctrine of immortality.

If to the last three groups of fears we were to add the allied but more degraded forms of folk-lore among children, which will be reported on later, we should have rank reminders of a state of abject and craven Lucretian superstition strongly suggesting that which Lenormant<sup>1</sup> describes as perhaps the most primitive of all known religions, and most purely the product of fears, that of the Shumero-Accads, the predecessors of the ancient Hebrews, where hosts of demons, ghosts, and the seven awful Maskim from the abyss always strive to bring confusion, subvert nature, spread disease and overwhelm man with terrors, against which he can only appeal to certain forms of conjuration and exorcism, and seek a friend in the sun as father of light, till slowly the idea of the unseen Elohim, the strong ones, quellers of these phantoms, is evolved, and the career is opened for the Hebrew monotheism, wherein the power of good becomes stronger than all the demons. Whether all races of men have at some stage quailed and quaked with supine fear of spiritual or supernal agents, and how far primeval religions are born of fear, we

<sup>1</sup> "La Magie et la Divination chez les Chaldéens," 1878.

may, perhaps, never know, but fear sublimated to awe, reverence, worship, a sense of absolute dependence on powers above us, must forever be an indispensable ingredient of religion, which even love can only temper, but not banish. We ought to fear things below us, and those above should attract and elevate and not degrade, as do most of the fear-born superstitions.

## XXIV.

## MORBID.

1. *F.*, 18. A favorite horror is a rough looking man always peering through the window, or from behind chairs, lounges, or under the table.

2. *M.*, 12. Used to imagine some one was looking at him through the register, and must always have it shut.

3. *F.* A teacher has for years feared to see some one hanging from a beam or hook whenever she enters a vacant room; can assign no cause.

4. *F.*, 18. Has from childhood hated to touch people, and never shakes hands if she can avoid it.

5. *F.*, 17. Has a chronic fear she will not get enough to eat sometime; it is not poverty, but that there will not be enough.

6. *M.*, 10. On reading of Joseph saving corn for the famine in Egypt, he began to save up bread, beans, potatoes, pop-corn, etc., under bed and wash-stand till their decay was offensive.

7. *F.* A young woman is pursued by the fear that there will soon be no more wood, and that the coal mines are nearly exhausted.

8. *M.*, 12. Thinks the sun will be exhausted and go out.

9. *M.* A wealthy farmer fears poverty, borrows money and pays interest on it, and keeps it ready if his home is taken away; his daughter and granddaughter have this fear.

10. *M.*, 16. Has a morbid dread of being poisoned; rinses the glass three times when about to drink.

11. *M.*, 17. Thought he was poisoned, fancied all the progressive symptoms, yet it was not quite real.

12. *F.*, 19. Thought some one would catch her if she stirred when alone; counted ten before every movement, etc.

13. *F.*, 25. A teacher suffered agonies of fear, about 6, for a year lest some one would break her ears, which she thought were glass.

14. *F.*, 40. A college teacher got the idea that the steam asphalt roller was alive; it would puff, glide around and return in a bravado style as if saying, "Who are you?" Each time she thought the last till she feared it would jump on her; grew afraid of all street noises, thought teams would fall on her; gave up work and was cured.

15. *F.*, 35. Teacher at about 10 got a horrid fear that she was under a spell, was saying aloud everything in her heart; this gave place to fear of another spell that she could never put on clothes enough to be modest; this lasted years; people looked pityingly at her; third came the fear that she was an idiot, and no one dared tell her; this horror still occasionally recurs.

16. *F.*, 20. In the early teens had long fears, especially when fatigued, of doing little things that would cause the death of others; misplacing medicines, dropping banana peels, opening the door to burglars instead of callers, were favorite forms among very many.

17. *F.*, 35. A college teacher would gaze at a frozen lake till she feared to go crazy; on the train the sight of ice made her desperate; the sight of running water impelled her to do something to stop it.

18. *F.* Another lady teacher was made sick and fearful of many ills by the sight of snow.

19. Another by bright sunlight, and had to have a north room.

20. Another has nameless fidgets if in a north room, or if the weather is cloudy.

21. *F.*, 39. Teacher, as a child had terrible fears nights that she was becoming an animal; could feel the face changing, horns and beard growing like a goat; for weeks she dared not look in a glass except to just peer in at twilight, when she saw all she imagined; it was so dreadful that even yet she can hardly bear to speak of it.

22. *M.*, 30. Has a very cranky aversion to dust and sweeping.

23. *F.*, 23. Has a special horror of moist hands.

24. *F.*, 16. Of dry skin.

25. *F.*, 57. Had such horror of dirt, as a child, that she could never play in sand.

26. *M.*, 14. Had convulsions from having his teeth sand-papered by the dentist.

27. *M.*, 7. The greatest fear is the noise of tearing cloth.

28. *F.*, 15. Has great horrors of sharpening slate or even lead pencils; the scratch of a pen or the squeak of a slate pencil gives her the cold shudders.

29. Fear of the *vox humana* stop of the organ, which seems unearthly, keeps an English woman from church.

30. Street cries, as of the oyster man, the scissors grinder, impress some children with morbid dread, seeming to be unearthly wails from another world with no words audible.

31. *F.*, 18. Is haunted by the fear of being run over; must get very far away from trains, cross roads ten rods ahead of the slowest vehicle, faints at fast driving, and dreams about it.

32. *F.*, 40. The pet horror is of big wheels in motion, belts, gearing, etc.

33. *M.*, 18. Has a panic if he can hear nothing; dreads stillness, cannot have his ears stopped.

34. *F.*, 38. Ever since she can remember has shivered at points and edges.

35. *F.*, 18. If she has a sharp thing, even a pin in her hand, cannot walk for fear of falling on it.

36. *M.*, 17. Has what he thinks an innate horror of a knife, and dreads to see one handled.

37. *M.*, 30. Otherwise normal, can never bear to have knives and forks at table point at him; it is the same with pins and pens.

38. *M.*, 18. Always shudders at sight of large knife or very sharp small one, and does not know how he can ever shave himself or be shaved.

39. *F.*, 21. Faints at every nose-bleed in school, every slight cut which she sees; cannot read of vaccination, or pass a surgical hospital, etc.

40. *F.*, 19. Has long had dread of any kind of conflict, and gets symptoms even if people disagree.

41. *F.*, 21. Faints if she hears any talk of fighting.

42. *F.*, 14. Dreaded most of all things to see boys fight, or to hear people have words.

43. *F.*, 13. "Was the naughty member of our family."

44. *M.*, 16. Never fears punishment, but the thought of it makes him wild with terror.

45. *M.*, 8. Was horrified to know that he had blood inside; thought himself a bag of blood, and that the least scratch might let it all out.

46. *F.*, 18. Always fainted at the sight of blood; cannot bear to see prominent veins anywhere; has difficulty in reading the word blood.

47. *F.*, 8. Is one of five girls, all of whom and the mother faint at the sight of blood.

48. *F.*, 17. Faints easy at it, but does not mind it, and is not afraid.

49. *F.*, 25. Is sick at the sight of raw meat; cannot see it touched.

50. *M.*, 5. Almost has spasms at the sight of a mask, or if anyone makes faces; a mask he once saw has haunted him for two years.

51. *F.*, 8. Has a strange aversion for noises; the ticking of a watch or clock makes her fidgety, and seems uncanny; the noise of wind in the pines makes her picture ghosts among the branches; at church her fear is that the organ will be played loud till the church will tremble and fall.

52. *F.* A cultivated lady was looking at a red light of a craft at sea, when the rays seemed a long red dragon's hand; she could not shake off the fancy, and lost control of her nerves.

53. *M.*, 1. The points of the pillow terrified him so that he could never rest till they were pushed in.

54. *M.*, 19. For many years in childhood he always feared at night an immense man with a long, sharp knife, a black cloak, black eyes, rough beard and white teeth.

55. *F.*, 11. Always feared a little black curly-headed dog which her imagination had created, and which she thought just behind her.

56. *F.*, 17. For years lived in constant dread she would do something to get blamed or punished.

In the above we recognize more or less developed forms of several of the familiar phobias of the text-books, *e. g.*, fear of points and edges, 34, 35, 36, 37, 38; fear of blood, 39, 45, 46, 47, 48, 49; of conflict, 40, 41, 42, 43, 44; of contact with dirt, or contagion, 4, 22, 23, 24, 25; *folie de doute*, 12, 15, 16, 20; hypochondria, 13, 15, 21; illusion of sight, 1, 2, 14; of taste, or possibly of persecution, 10, 11; morbid sensitiveness to visual, 17, 18, 19, 20, or auditory, 27, 28, 29, 30, 51,



impressions; baseless fears of starvation, 5, 6; poverty, 9. We have classed a large group of our returns as morbid, conformably to medical standards for adults, despite the fact that they show such symptoms to be far more common than is thought among children. To have any or even all of these fears and with considerable intensity, is not abnormal for them, but perhaps a sign of abounding vigor, provided only the reductives are forthcoming and speedily effective. In the absence of these they persist and increase until they interfere with self-control. The Herbart-Taine view that any or all impressions tend to grow to illusional intensity unless restrained by competing or opposite images, is convenient to illustrate the countless ways in which one fear restrains another. When the senses and fancy are at their strongest, and the "sum of arrest" largest, it is no more surprising that the balance is sometimes lost for a moment than that children fall in learning to walk. In most of the adult cases quoted above, the correctives were too weak, too late, or fatigued out of function. How often needless fears are due to overwork is illustrated by school fears, like 25 and 28 above, and the following:

## XXV.

## SCHOOL FEARS.

1. *F.*, 9. In the school reader read, "And ever near us, though unseen, the dear immortal spirits tread," when it flashed into her mind that dead people were walking around unseen; thereafter she could never be alone, grew sleepless and timid.

2. *F.*, 28. To her About's "Man with a Broken Ear" and Hawthorne's slight point in Donatello's ear made awful impressions, which show the terror slight disfigurement may excite if made mysterious.

3. *F.*, 10. Hearing of a Russian war grew nervous and sleepless, fearing invasion.

4. *F.*, 6. "Red Riding Hood" made her fear everybody whose face she could not see was a wolf dressed up.

5. Another child caught terror of being lost, and of woods, from "Babes in the Woods."

6. *F.* From 6 to 16 dreaded ridicule so that she could not recite what she knew; never dared ask questions about what she wanted to know.

7. *F.*, 15. Developed a morbid terror of losing her rank, of failing in examination; she lay awake nights imagining her mortification, and what others would say; this fixed her mind more on marks than knowledge, and finally broke down her health.

8. *M.*, 7. For him the front hall was an object of terror; the figure of the wall paper looked like horrid grinning men he named "gubbernoses."

9. A picture of some saint gazing at a skull in a church was specially dreaded.

10. *M.*, 15. When he first learned about petrification, he long had a fear that he was becoming stone.

11. *M.*, 10. On learning of earthquakes, often fancied he felt it tremble, would pause in walking, etc.

12. *F.*, 8. Feared that small cracks where mud had dried would open and swallow her.

13. *F.*, 6. Learning the earth was round developed chronic dread of falling off.

14. *F.*, 8. Feared to go far from home lest she should reach the edge where earth and sky joined and drop off.

15. *F.*, 9. Had such fear of the pictures of the animals in the school geography that this subject was dropped.

16. *F.*, 13. On learning in school about the physiology of the eye, developed an intense fear of blindness, and did absurd things to prevent it.

17. *F.*, 14. From a physiology lesson developed persistent fear of swallowing her tongue and being unable to talk.

We sample finally a few cases showing the struggle against fears, and the interest it gives to objects.

## XXVI.

### REPRESSIONS OF FEARS.

1. *F.*, 45. Till about 12 she had horror of locomotives, yet frequented the station, crossed pins on the track, and one day danced in front of the engine, getting more excited and terrified as it approached, yet fascinated and unable to leave till rescued by others; this effort to overcome her fear made it worse.

2. *F.*, 17. Loved horrible stories of every kind, yet suffered horrors from them at night; by day she would always invite them to cure herself; some boys of 6 slowly developed some giants ten feet high; first Mr. Pupicles, then added Mr. Fox, Pie, and others; these creatures were thought cowards when we chased them, but would crawl up behind or stab us asleep; we organized hunting parties, and when one would cry, "There is Pie," we would all rush for him.

3. *M.*, 17. When he is skulking or quailing, he says to himself, "You're afraid;" this kills fear.

4. *F.*, 14. She is timid, but will do any dangerous thing rather than be called a coward.

5. *M.*, 15. Makes faces at his little sister, makes believe pound her, and does everything to make her less cowardly.

6. *M.*, 14. Thinks if teachers would never threaten, but explain things, there would be no fears.

7. *M.*, 16. Has been taught that it is safer in the dark than in the light, and his chief fear is lest he should be afraid.

8. *M.*, 8. Was a coward until once his brother said, "You cannot be any more than killed;" by repeating this he has grown brave.

9. *F.*, 16. Has learned now to merely dislike all that she used to fear.

10. *M.*, 15. Lies awake playing with his fears by thinking how bold he would be in all kinds of foolhardy situations.

11. *M.*, 17. Never fears things at the time, but at night shivers to think how bad things might have turned out, till many a night he dresses and goes out to shake off fear.

12. *F.*, 16. Has peculiar interest in an old Quaker meeting-house, which she now loves and visits because of an interest created by a childish fear there were ghosts in it.

13. *F.*, 6. Is beginning to play, with peculiar interest, with a window stick of which she used to have an inexplicable fear.

14. *M.*, 6. A big wooden spoon, feared because it seemed to be made to slap with, afterwards became a toy of special interest to him.

15. *M.*, 6. Just entered an empty room alone, stamped his foot and shouted, "Go away, everything that's here."

The physical expressions and symptoms of fear are very often mentioned in our returns, but in terms too popular and indiscriminating to have great value. The word *creepy* occurs 73 times, and is used mostly by females; words designating weakness, or loss of power to speak, move, paralysis, etc., 70 times; tremor, shaking of jaw, limbs, etc., 58 times; stiffening and rigidity, or tonic as distinct from clonic tensions, 50 times; pallor, 44 times; respiratory changes, as holding the breath, panting, choking, deep breath, 43 times; heart action, palpitation generally, sometimes arrest of pulsation, 42; chills, without mention of shivers, but often associated with "creepiness," 35; sweating or flushing, 28; convulsive shock movements, 28; feeling unusually strong to fight or fly, 25; nausea, 21; shut eyes, cover face, or double up, 21; fascinated or entranced, 12; transient blindness, deafness, or insensitiveness, 11; noises in ears, or flashes or colors, etc., in the eyes, 9. Three mention tendency to micturition or defecation. Young children scream and cry loudly. Three infants, frightened at dog and cat, spit at them, and general nervousness is common. Some of these expressions show some marks of being nascent excitement of once useful acts, but for others we have only conjectural explanations, like, *e. g.*, Wundt's, that the face may redden to save the brain, etc.

Ever since Marcel's great thesis on the subject in 1847, alcoholic delirium tremens has been generally recognized as embodying more of the strongest expressions of fear than any other known symptom-complex. Fear with most of its syndromes may enter through every sense and dominate every group of muscles, striated and nonstriated. Magnan,<sup>1</sup>

<sup>1</sup>"Alcoholism and the Various Forms of Alcoholic Delirium," tr. London, 1876, pp. 33. See also his "*Vorlesungen*," 1891, Heft 1, XI.

Ziehen,<sup>1</sup> Kräpelin<sup>2</sup> and others describe these symptoms as both extreme and characteristic. Especially in the prodromal stages of this form of acute hallucinatory paranoia, fears of animals of many kinds, bugs, spiders, worms, snakes, rats, dogs, lions and imaginary monsters play an important rôle. Dr. C. F. Hodge, after a prolonged and careful study of alcoholism in dogs, soon to be published, informs me that excessive fear is the most characteristic psychic mark of the inebriate dogs, distinguishing their acts and attitudes in every case from the non-alcoholic members of the same litter. Magnan has also shown how this cause may lead to delusions of persecution, from the stage of general suspiciousness to the time when the victim turns on his imagined foes and from being persecuted becomes a persecutor. Here is, no doubt, the best field for studying the manifestations of fear writ large, where disease of the higher level has caused denudation and put man mentally on all fours again.

The dominant impression left by such a study as the above is that of the degrading and belittling effects of excessive fears. They suggest dew-claws, or the filmy castings or harder fossils of long since outgrown psychoses. A feeble boy of 10 enumerates fifty-seven objects of which he has great fear, and adds that there are others he fears some. A girl of 12 feared the sun because it gave sun-stroke, clouds because of cloud-bursts, the moon because it might burst and fly, the sun lest it should get lost or burn us all, and cold weather lest ears and fingers should drop off, and her life activity was greatly restricted accordingly. An ignorant but vigorous boy of 14 feared bubbles in puddles when it rained, thinking them devil's fingers, a forbidden bridge because told the bad man lived under it, scrubbed his neck clean because told that otherwise onions would grow in the dirt there and leave dangerous holes when pulled, feared to open the hydrant because told an ugly green snake would come out and bite him, and thought a telephone too dangerous to monkey with. A girl of 13, thought not abnormal, dreaded big eyes and robbers because they were sneaky, all reptiles because they were creepy, northern lights because they were shivery, could not bare to look at a picture of the crucifixion, nor enter the parlor alone for fear of a picture of hounds and a fox. For a girl of 17 all telegrams meant death; she dreaded to go out lest a comet should dash down, feared all women who wore big earrings, and a mythical black man who rode in a buggy with a sword, etc. Spring-heeled Jack, the Black Bull of Wild's

<sup>1</sup>"Psychiatrie," 1894, p. 355.

<sup>2</sup>"Psychiatrie," 1893, p. 539.

Hill, the Hairy Lunatic, the Ghost with Grizzly Gore, and unnumbered other fear-fetiches suggest that there may develop a passion for horrors and shudderings as strong as alcoholism. The courageous child will not succumb to fears, and has a passion for overcoming them.

The imperfections of both the methods and results of all this work are very obvious, and everything depends on keeping them all in sight throughout. This cannot be said too distinctly, emphatically, or too often. Most returns are not made by experts, but by young people with little knowledge of psychology or of the dangers of loose and inaccurate statement, and who are peculiarly prone to exaggeration in describing their feelings. Some returns are seen to be of no value, and are rejected at the start. Many of the floridly described fears are filmy and no doubt far less real than the language would indicate. Some, too, no doubt, are almost purely imagined. The data have all degrees of value from nothing up to very great. Much, of course, depends on the common sense and experience of the person who does the preliminary sifting, and in this work the writer can only say he has done as well as he could. On the other hand few psychic activities are so certain and real to those who experience them or so obvious in others as fear, while the dread of being thought timid or cowardly generally makes against confessions of it. Many hundred fears are reported by college or university students of psychology, by friends of the writer, in whose competence and reliability he has the greatest confidence, and particularly those from Miss Williams are made by a method calculated to eliminate very many at least of the possible defects and errors. Whether the attempt to avoid all harmful suggestiveness in the questionnaire was successful or not, the reader can in part judge for himself. The few hundred cases printed are from what is thought to be among the more reliable of the vast body of returns, although chosen to show distribution rather than quality. Less fragmentary, fuller, more finished and much more valuable returns generally would be those made by experts on their own children, individually studied, or on themselves. Indeed, almost any increment of expertness, medical, anthropological, psychiatric, etc., and any degree of familiarity with the child up to companionship every hour of every day, would increase the value of observations. We are, however, happily past the stage of the tyro who would pronounce such well meant returns on such a topic wholly good or wholly worthless. Glimmerings of most of these fears nearly all have probably had, and these will always be one factor in their evaluation.

This latter I deem very high, and my own confidence in most of the data has, upon the whole and making all deductions, steadily increased with growing acquaintance with them. I have printed many because they show the fresh spontaneity, the genius of child and folk thought, and the rich suggestiveness of my anthology of cases is to my reasonings about them as are the sacred texts of Scripture to Barnes' notes or Dodridge's commentaries. Even the simpler and more homely of them are nuclear and their photosphere is wide and bright. Some of them are almost perfect psychograms. I have tried to avoid not only the grout, but the adiaphora of the subject.

Most of my comments and inferences, too, are of course intended more as suggestions than as finally formulated conclusions. Nothing is finished here, and little is conclusively proven. These rich fields are just opening to pioneer work, and the mining is first by surface methods, which are very different from those at the bottom of the shafts, which further specialization is certain soon to sink. The processes of Eschol grape gatherers are very different from those of settled traffic on the main thoroughfare of psychology, which will soon traverse all this region. To keep all soft and plastic, and to retard inspissation, or the secretion of too many hard parts, is imperative in order that everything be left open to this growth in all directions. This means, too, that crasser minds can sense nothing palpable in it all, and also that everything be left unprotected and open to attack; but the vitality is too protoplasmic to be easily impaired. Samples from the vast mass of data, according to the most objective rubrics under which they so readily grouped themselves, and then a glimpse at some of the larger aspects and problems which all the data in hand, printed or unprinted, seemed to suggest, appeared at least a method worth trying on one of our topics. There is not a single group of fears that does not almost cry out for further investigation with the larger numbers, better distribution over wider ranges of age, still further precautions and progressive exactness, the more practical pedagogic applications, etc., that will soon come. The present paper, too, merely touches a very few aspects only of this vast theme.

Most current text-books on psychology contain little or nothing helpful on fear. Many of them barely mention it; others theorize on the symptoms popularly ascribed to it, using its common phenomena for picturesque illustrative material; others have much to say concerning feelings, instincts or emotions generally, but are not specific enough to discuss any single feeling in detail; others are chiefly concerned with



nomenclature and definitions, or the place of fear, etc., in some scheme of psychic activities. What problem could better illustrate the crude scholastic stage of the contemporary psychology of feeling and emotion than the elaborate recent discussions of the problem whether they are the results of tension of muscles, vessel-walls, etc., or the latter are primal and causative? No problem is more unsolvable; hence some of its speculative charm. Solution, moreover, if it could ever come, would be attained in the very different direction of what Kirschmann used to call the method of further delineation and description, to which everything discoverable is sure to yield in the end. In text-books on psychiatry, phobias are less and less prominent, and the elements that once entered into this symptom-complex are usually distributed among other diseases. From Mosso's<sup>1</sup> great yet charmingly popular work, which is largely devoted to descriptions of the physiological accompaniment of fear and to its expression, the impulse to further study has been less than was to have been expected. Miss Calkins<sup>2</sup> tabulated the fears of 202 children, and found that in those under six, sound fears predominated; out of 122 cases she classed 23 as innate and 9 more as inherited. Binet<sup>3</sup> discusses 110 answers to a questionnaire on fear, but in a tentative, timid way, which is certainly all his data warrant. His conclusions that fear depends largely on the vividness of imagination and his pedagogic inferences, agree with our own better than does his opinion that the degree of intelligence has little to do with fear.

Of the more theoretical discussions of fear, by far the best, as it seems to the writer, is that of H. M. Stanley,<sup>4</sup> who is both fuller and far better than Ribot's *Psychologie des Sentiments*. The former conceives fear as anticipatory pain, the pre-perception of which constituted the first emotion, marked a great step upward, because it was the first utilization of past experience, and is the chief spur to know and do. Not only do the timid survive, but the suggestion of past pains gives power to anticipate and avoid danger. Fear, too, has its own pain, which is distinct from the pain of the object feared, but the former is less, and there is economy in the substitution. When fear is very intense, knowledge, which is anticipatory of it, breaks up in dissociation. There is

<sup>1</sup> "Fear," by Angelo Mosso, tr., London and New York, 1896, pp. 278.

<sup>2</sup> "The Emotional Life of Children," by Mary Whiton Calkins, *Pedagogical Seminary*, Vol. III, 319-323.

<sup>3</sup> "La Peur chez les Enfants," *L'Année Psychologique*, 1895, pp. 223-254.

<sup>4</sup> "Evolutionary Psychology of Feeling," chaps. VII and VIII.

much fear that does not rest on experience. Fears slowly become differentiated first in degree, as intense and evoking the greatest possible activity, or as slight. Here the personal differences are vast, as a phobometer that measured the saturation point at which all control was lost, would show. Another individual difference is between those far and those near-sighted for fears. The law, "inversely as the distance," does not hold alike for all. Finally, awe and sublimity are perhaps the most refined forms of fear.

From this larger view we see how essential to every soul, brute or human, fear has been. It is no less universal now. There is no one without fear, and those few who so emphatically disclaim all fear, and the psychologists who tabulate the percentages of fearless people, are thinking of shock or panic or acute fright, or special physical dread, etc., but not of the subtler forms, like fear of God, of dishonor, failure of their highest purposes, for themselves or others. Not only does everyone fear, but all should fear. The pedagogic problem is not to eliminate fear, but to gauge it to the power of proper reaction. Fears that paralyze some brains are a good tonic for others. In some form and degree, all need it always. The difficulty is to adjust to the vast range of individualities and the very different stages of development. A true curriculum of fears would by no means omit all lower and more drastic forms, but be always intent on substituting its higher and wider ranged spurs for its more degraded and primary ones up to reverence and worship of the sublime and awe-inspiring. Here fear must be reduced, there abated, here made more tenuous, there more crass. We fear God better because we have feared thunder. Without the fear apparatus in us, what a wealth of motive would be lost! Aristotle's conception of education as learning to fear in due proportion those things worthy of being feared, would not serve badly as a definition also of courage.

Again, fears are necessary because they are the roots of so many of the strongest intellectual interests. Never is the child's charm in an object so great as at the moment when he is just getting the better of his fear of it. One of the chief spurs to knowledge and science is to overcome fear, and many of the things now best known are those that used to be most feared (XXVI). To feel a given fear no longer over but beneath us, gives an exquisite joy of growth. Even love may begin in special timidity. Those reared under religious terrors are sometimes most irreverent, or if *aufgeklärt* are especially fond of dissertating on old religious sanctities from new found radical standpoints. With children foolhardiness is a favorite form of showing off. Fear is necessary first to

focalize attention and educate in concentration. Even food, perhaps, has less acuminating power. Whether to fly or fight is the problem, and adjustment must be ready for either. Interest involves a general act of the attention to an object with the pain element reduced, and curiosity is a form of interest. Complete knowledge often eliminates not only fear, but even reverence. Love does not cast out fear as if there were an amphiboly between them, nor yet as if fear were transpeciated into love, but a trace of fear toned down to respect lingers not as a mere flavor, but as contributing a part of its essential reality to the object loved. As Fichte thought the ego posited its own self-limitations and then transcended them, we may conceive the soul as self-limited by object fears, which it transcends in knowledge and turns to again in interest and love, when both self, object, knowledge and love owe part of their actuality to the old radical fear. If pain is diminished action, and pleasure is greater perfection in action, then the *love of natural objects* must be considered no less fully as the complementary part of this paper. The report devoted to this obverse side of the subject is essentially complete, and will soon appear, and only then can the reciprocal relations between love and fear be more fully treated, where, I think, it will appear that while fear is the mother of all superstitions, it is also the rudimentary organ on the full development and subsequent reduction of which many of the best things in the soul are dependent; that the philophobic thesis, antithesis and synthesis are essential biotonic motives, that a childhood too happy and careless and fearless is a calamity so great that prayer against it might stand in the old English service book beside the petition that our children be not poltroons.

Fear is pathic, obsessive, so concrete that it is no wonder it was long held to be a morbid entity, or even that Brown-Sequard thought he could inoculate its bacilli. In many forms of deliriums, especially tremens, fear is a dominant element. Horror even has its art, as in Poe, Hoffmann, Wiertz, etc. The timid do not resist disease, and fear seems to invite it. So important did Pinel think it in psycho-neural disturbances that he always specially questioned every patient as to fears. Fears profoundly affect not only the lives, but even the theories of great men, as in the case of Hobbes, and in a different way Schopenhauer. One of the very worst things about excessive fear seems to me to be that it makes people selfish, profoundly and dominantly selfish, as few other things do. This and its frequent association with weakness lie at the root of the instinctive aversion to tell our fears. Few better indices of individual strength and of

soundness and vigor of heredity can be found than the phagocytic power of eliminating baser fears, or of incessantly working them over into higher forms. Bad and even dangerous as its grosser forms are, there is no possible way of developing the higher without them. Not extermination, but education is the need. Every element of soul and body is a factor in determining how much and what kinds of the baser metal each individual can transmute into the higher.

One fundamental assumption in this paper is that the experience of the individual, and even that of his nearer forebears, while it can explain many of the fear phenomena, more no doubt than most of our reporters think, cannot explain all. This view, like its opposite, it is impossible to demonstrate conclusively. The naked eye may be utterly unable to tell whether a light near the horizon comes from a fireside candle or a star. Psychic elements generally, and feelings particularly, are in some respects like the soft parts of animals of which the paleontologic record preserves but few traces. Interest in problems of the soul used to centre in its future state; now it centres in its present, the instantaneous now, to which epistemological tendencies which give us an official psychology with no perspective would shut us up, or the larger present of the individual, or the historic period. Weismannism has, perhaps, also done something to countenance the disposition to make contemporary psychology a cross-section of the adult soul and to delay the full recognition of evolution in this field. It has had a limiting influence on psychology not without analogy to DesCartes' theory that animals were mere automata. This was, perhaps, well, for the study of the near should precede that of the far. But long before and after Plato, even in the church, doctrines of pre-existence of the soul were so inseparably bound up with those of post-existence or immortality that both stood or fell together, and from the metempsychosists to Wordsworth, from Clifford to Cope, paleopsychic or archæsthetic views of many kinds have been strongly held. There seems now a growing sentiment toward a more unfrontiered standpoint, showing that however different soul and body may be, they have been associated like twins from the first, so that if there have been metempsychoses there have been parallel metasomatoses, that as organization or brain is found increasingly complex, we must look well to it that our conceptions of soul do not leave it mean, parasitic, or even epigenetic, but make it no whit less involved and venerable than the body, with rudimentary and vanishing organs like it, and like the living soma subject to incessant change, to know the laws of which is the goal of psychology. As the

notochord, *e. g.*, performs its function in the embryo and is transformed, so we may find psychic functions or elements very important for a developmental stage, but with no trace in the mature mind, or we may have to postulate such, like, *e. g.*, Haeckel's fruitful hypothesis of the *gastrea* stage.

In view of this I think we shall find among the most valuable lines of new psychogenetic research that of what may be called the stages of forgetting. Like waning consciousness, lapsing memory by no means involves degeneration, but is sometimes most rapid at the very *cone d'accroissement*. Perhaps we shall never know how, or even whether acquisitions, in growing automatic, pass to basal ganglia or down the meristic levels toward reproductive efficiency as knowledge becomes cryptoneotic. That there is some such a tendency, however, few will doubt, and must we not hold that no acquisition is complete until it has somehow so pervaded the soma that the reproductive elements are modified? These modifications of heredity may have perhaps almost innumerable sub-threshold degrees before either consciousness or spontaneous action would be directly caused. As infants, although they cannot speak, yet, unlike apes, have a capacity to be taught language, so we must assume the capacity to fear or to anticipate pain, and to associate it with certain objects and experiences, as an inherited *Anlage*, often of a far higher antiquity than we are wont to appeal to in psychology. To learn what to fear so as to fear wisely and effectively, although it is a school as old as the instinct of self-preservation, is still a chief part of education.

Again, as soft parts are always older than hard parts, and make or condition them, and the unicellular and protozoan forms of life are geologically older and more unchanging than the larger metazoan species, so faint stimuli from more constant causes must have been far commoner than strong ones. We may assume, too, that long repeated impressions through geologic ages would cause deeper and more durable effects than intense and infrequent ones, on a principle analogous to the greater deterrent effect on crime of slight but certain penalties. Much of the education of germ plasma, as well as in cases discussed above in XX, is by the method of frequent but faint iteration, often approaching almost constant tension. As in geology, again so here, the greatest results are often achieved by the slightest and slowest causes operating incessantly. There is a peculiar prepotent quality about some of these fears that suggests some such ancient origin, and points to the persistency of cells or protoplasm rather than to the more formed and therefore more transformable tissues of later stages. As some cases of spontaneous blushing and of

*pavor nocturnus* suggest the results of long ago shocks, quite distinct from those other cases of parasitic personality or of the submerged experiences that hypnotism expiscates from the unconscious depth of the soul, which point to more recent shock fears, so the fears toned down to awe of the forest, of the gloaming of night, of the heavenly bodies, of solitude, etc., seem to bear the stigmata of antiquity. If we assume any backward perspective in the soul at all, of what else in it have we a better right to postulate age, self-evidenced as by first intention?

Without assuming far wider ranges in the past, psychology can make but slow and hard progress in exploring feeling, instinct and the rich mines of unconsciousness just opening. The careful study of fear thus leads us to results that aid in the solution of some of the profoundest problems of mental life and are at variance with certain of the most approved views of modern psychology. In his remarkable work on *Salpa*<sup>1</sup> Professor Brooks thinks the deep sea bottom was discovered and colonized some time after life had been developed near the surface. Food was obtained easier, and sedentary life when once established there was more favorable to growth and reproduction. We can now hardly conceive the capacity of the sea floor for sustaining life, nor the rank abundance of it there in many vast areas, or the new forms that arise there. The instinct-feelings now opening to psychologists are such a bottom, far fuller of life and growth than all the surface phenomena of intelligence, where many forms originated, but now, as lapsed consciousness, hard to get at, our method, to carry out the faint and halting analogy, being a new form of dredge, and fear like *Salpa* being a typical form especially inviting a discussion of its relations to the evolution of the psychic life in general, which, however, we must here postpone. At every step the sense deepens that the conscious ego is but a very inadequate and partial manifestation of the soul, that it is a feeble, flickering taper in a vast factory full of machinery and operatives, each doing its work in unobserved silence, and which the epistemological method of discussing the nature of light will never illuminate.

The best of all evidences of the high antiquity of the fear *Anlage* of the human soul rests not on any one fear group, nor on the summated evidence of all together, but on the proportional strength of different fear elements and tendencies. Their relative intensity fits past conditions far better than it does present ones. Night is now the safest time, serpents

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<sup>1</sup> "*Salpa*," by W. K. Brooks, Baltimore, Johns Hopkins Press, 1893, pp. 123-177.



are no longer among our most fatal foes, and most of the animal fears do not fit the present conditions of civilized life; strangers are not usually dangerous, nor are big eyes and teeth; celestial fears fit the heavens of ancient superstition and not the heavens of modern science. The weather fears and the incessant talk about weather (p. 177, and VI generally) fits a condition of life in trees, caves or tents, or at least of far greater exposure, and less protection from heat, cold, storm, etc., than present houses, carriages and even dress afford. Yet, again, the intensity of many fears, especially in youth, is out of all proportion to the exciting cause. The first experiences with water, the moderate noise of the wind, or distant thunder, etc., might excite faint fear, but why does it sometimes make children on the instant frantic with panic? Must we not conclude that, as Palmén found that the eider ducks in their annual migration from northern Europe to Africa crossed the Mediterranean over wide and therefore more dangerous paths because they fly where land used to be, and that their topographic instincts are thus older than the present geological configuration of the old world, so the human instinct-feelings, incalculably more ancient than the intellect, have been felt and macerated into their present general form very gradually by social telluric and cosmic influences, some of which still persist unchanged, but more of which have been either modified or are now extinct? Adjustment is thus one of the deepest problems of pedagogy. It is especially hard because the full scope of the more basal fears rarely comes to expression in consciousness, but only partial aspects of them, as illustrated by the principle of fetichism, so akin to, if not at the root of the naming instinct, which eternally puts a part for the whole, underlies symbolism, make us cling to our categories after they have become mere clinkers in the ever burning fire of flux and change, of which body and mind are alike phases.

The fact that some of these fears are so very tenuous that they almost seem to be nothing but flitting fancies, and have an air of such unreality as to suggest a distinct class of pseudo-phobias, and that we often say in reading them that we could have imagined, but never could have truly felt certain of the fears above recorded, by no means disproves their antiquity, and can never do so till we know how much of the work of the imagination is purely creations out of nothing, and how much is in reviving obsolescent traces of remote experience. Beccari thinks each philum, although being very plastic for permanent and transmissible impressions in its early stages, loses this power, so that conservative heredity is the rule later, while the oldest traces are surest of

transmission. This strengthens the suggestion that the oldest psychoses would be likely to be the dimmest, despite their potency, and that the influence of earlier inheritance dominates that of later, still and small though its voice be. To make these all products of present experience is not unlike accounting for fossils on mountains as God-made, for it ignores not only their peculiar structure, but a past of psychoses radically different from those of the present, functioning under conditions no less changed. How much the true Aristotelian katharsis consists in very highly suggestive restoration of such far past conditions in conformity to a law that these traces must be re-excited as a necessary condition of their transformation to the next higher stage, as the soul "builds itself larger mansions," the next article will seek to show.

Once more, if among our psychic functions fears are peculiarly liable to become morbid, they only follow the law of rudimentary organs of the body which are especially prone to become diseased. This point will have fuller treatment elsewhere.

There is no normal organ or tissue which we do not inherit from an anthropoid ancestry. Besides organs at the apex of function in the adult, structures like the lanugo, polymasty, the coccygeal vertebra with both muscles and nerves that once moved a tail, the pineal gland, the nictitating membranes, ichthyosis and perhaps 120 other embryological forms, often hypertrophied in teratological cases, etc., now make a position like that of Agassiz, who saw the facts, but failed to see their significance, quite obsolete. No less so is sure soon to be that of those who in the presence of facts now so fast being made known still fail to see that the doctrine of evolution is just entering a new and higher psychic field, where it promises soon to give us a clear and simple doctrine of mind, the evidence of which is so plain that all can see, and which is thus fit to be the national philosophy of a democracy because it does not depend on mystic or esoteric insight, but its obscurities are those of the subject matter itself, and not artefacts of method. As at great crises in history, unhallowed ghosts stalk abroad from old graves, so just at the threshold of epochs in science, effete theories may be resurrected for a brief day. Surely these signs of better things do not fail us now.

One of the chief desiderata of psychology now is a function analogous to the Kantian criticism applied to the instinct-feelings to distinguish what is pure or transcendental in them from what is due to individual experience. What kind of *Anlage* must we assume as the necessary presupposition of

concrete experiences of fear, anger, love, etc. † The concreteness of empirical and *a priori* factors is closer here than in the field of the understanding, and he must be a bolder and yet more skillful timoneer who shall force a passage between them and give us a true map of their conterminous frontiers. As Weismann to Locke, on the one hand, and as Spencer and Eimer to Leibnitz and Berkeley, on the other, so much greater is this problem than was Kant's. Let us hope that whenever any solution or even adjustment is reached, whether by the signal achievement of some great personality, or, as is more likely, by the method of slow collective formulation, it will not be like the Kantian system a crystallization of rich knowledge and deep and brilliant aperçus about the castings of old and borrowed categories, and hence with a surd at its inmost core, but by the effective and well ordered grouping and mobilization of the facts and laws of life and growth of body and soul, youth as well as maturity, animals as well as men, the past as well as the present, it will show us in the very fossils of instinct and automatism sermons against easy indulgence in a sense of finality, and give faith in and suggestions and motives to an indefinite future progress.

Further returns upon this subject will be gratefully received by the author, who would hope to utilize them in a final report.

MINOR STUDIES FROM THE PSYCHOLOGICAL  
LABORATORY OF CORNELL UNIVERSITY.

COMMUNICATED BY E. B. TITCHENER.

XI.—LOCALISATION OF CUTANEOUS IMPRESSIONS BY ARM  
MOVEMENT WITHOUT PRESSURE UPON THE SKIN.

BY PROFESSOR C. S. PARRISH, A. B., A. M.

This article gives the results of a series of experiments made during the academic year 1895-96. The investigation grew out of the work of Dr. W. B. Pillsbury<sup>1</sup> in the Cornell laboratory during the year 1893-94, and that of Prof. Margaret Washburn<sup>2</sup> published in 1895. The object of this investigation was twofold: (1) To determine as nearly as possible how accurate was the localisation of cutaneous impressions by arm movement *without pressure on the skin*; and (2) to test in this connection the influence of the visual image, which both Mr. Pillsbury and Miss Washburn had found an important factor in cutaneous space judgments. The method used was very similar to that employed by Mr. Pillsbury (E. H. Weber's second method), but differed from it in one important particular. An impression was made on the skin, and the subject was asked to indicate the point touched as accurately as possible by carrying a charcoal point over it, but *pausing in the air above the arm*. In Mr. Pillsbury's work the arm had not only been touched by the subject in the act of localisation, but he had moved about after touching, until he thought he had found the point stimulated.

A. EXPERIMENTS.

Except in the case of one subject, the investigation was restricted to an ellipse on the volar side of each forearm,

<sup>1</sup>"Some Questions of the Cutaneous Sensibility," AMERICAN JOURNAL OF PSYCHOLOGY, VII.

<sup>2</sup>Ueber den Einfluss von Gesichtssassociationen auf die Raumwahrnehmungen der Haut. Phil. Stud., XI, 2. Separately: Engelmann, Leipzig, 1895.

beginning just above the wrinkles at the wrist. The major axis extended about 10 cm. in a longitudinal direction, the minor axis being decided by the volar breadth of the subject's forearm. In order to avoid the visualising tendencies produced by operating upon definite and known lines, no permanent division of the area was made; but care was taken that no impression should be in the immediate neighborhood of that just preceding. The arms were taken in alternation. In the earlier part of the work not more than ten experiments were made upon one arm at the same time, and no series for one arm contained at any time more than twenty experiments. With these precautions no disturbance from the after-effects of pressure was noticed. In order that the subjects might not know the arm area operated upon in terms other than those in which they localised, nothing was said to them of the ellipse. Each subject, therefore, in experimenting upon the writer (the exception mentioned above) made the impressions anywhere on the volar side of the forearm, from the first wrinkle at the wrist to a line about 12 cm. above it; the area operated upon being roughly an oblong instead of an ellipse.

During experimentation the subject sat with the arm on which the experiments were made resting on a low table at his side, the elbow being ordinarily a little in front of the trunk and the arm extending along the edge of the table. As it was desirable that there should be no distractions arising from physical discomfort, the exact angle of the arm with the edge of the table was not regulated. There was a variation of  $0^{\circ}$ - $30^{\circ}$  approximately. The arm with which the localisation was made either hung by the side or rested on the corresponding knee, when movements in flexion were desired. When movements in extension were tried, as was the case in a few experiments, the arm was held against the chest. The eyes were closed or open, as the experiment required. As has been said, the experimenter touched the arm with a charcoal point; the reactor indicated the point on the skin touched by carrying another charcoal point as nearly as possible over it, but not purposely touching the skin,—thus cutting off the normal ending of the localising movement.<sup>1</sup> The experimenter then dropped a perpendicular from the charcoal point in the subject's hand to the skin, and determined the amount of the localisation error by the aid of a millimetre scale. The charcoal point with which the skin was touched was kept one millimetre in diameter. As in Mr. Pillsbury's experiments, the directions were divided into eight groups

<sup>1</sup>Wundt, "Human and Animal Psychology," pp. 139, 140.

for convenience of record : right (R), left (L), peripheral or towards the wrist (P), central or towards the elbow (C), and the directions midway between these : L P, R P, L C and R C. The subjects were Messrs. Pillsbury (*Py.*), Manahan (*Mn.*), Moyer (*Mr.*) and Miss Parrish (*Ph.*), the latter being experimented upon by all the other reactors.

Since, in our experiments, no definite divisions of the area operated upon were made, and it was desirable to have a method similar to that of Mr. Pillsbury for purposes of comparison, we have chosen the general form of Table I of his work.<sup>1</sup> We have given, however, in the same Table, not only the average magnitude, but the number of displacements in any particular direction, and have separated the experiments on the right and left arms. We have introduced, also, ratios between the *number* of central and peripheral displacements as well as between the average *values* of these. The same thing has been done with right and left displacements.

As in the investigation out of which this grew, the subjects differed very much in their power of voluntarily controlling visualisation.<sup>2</sup> (1) From careful introspection both in this and previous experimentation, *Py.* thought that he was not able to excite or to shut out the visual image at will. The results obtained from him show no appreciable differences of the averages in the visual and non-visual series. When he attempted to pause in the air just above the stimulated point, he had a strong tendency to touch the arm, and frequently did so,—though he did not move the charcoal point after contact. His localisation was always quite close to the arm; but this was especially true in the series with the eyes open. No constant ratio, however, could be established between the distance above the arm at which the movement concerned in localisation ceased and the amount or direction of cutaneous displacement. Table I shows the results obtained from this subject.

In the experiments tabulated under "Normal," the subject was not instructed in what terms to localise, but was left to his own method, simply being asked to localise as accurately as possible. In the series marked "With Visualisation," he was requested to form as vivid an image of the arm as possible and to localise by means of that. In the series marked "Without Visualisation," he was requested to make a direct attempt to shut out the visual image. In the experiments "With Eyes Open," he looked at the arm as the impression was being made, and then, closing his eyes, attempted to localise.

<sup>1</sup>AMERICAN JOURNAL OF PSYCHOLOGY, VII, 1, p. 46.

<sup>2</sup>AMERICAN JOURNAL OF PSYCHOLOGY, VII, 1, pp. 46 and 47.



TABLE I.  
Reactor  $P_y$ . Unit = 1 mm.

	NORMAL. FOUR SERIES, 120 EXP.				WITH VISUALISATION. FOUR SERIES, 140 EXP.				WITHOUT VISUALISATION. FOUR SERIES, 160 EXP.				WITH EYES OPEN. FOUR SERIES, 200 EXP.			
	Right.		Left.		Right.		Left.		Right.		Left.		Right.		Left.	
	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.
Peripheral	9	10.5	10	17.3	14	16.1	8	15.5	22	22.7	27	33.1	26	11.4	28	14.2
Central	2	10	2	8	2	8	3	11	3	11	3	11	5	10.3	2	6.5
Right	3	14	5	10.4	2	11.5	9	16.7	9	16.7	4	12.5	9	10.5	5	13.8
Left	7	18.6	11	14.7	17	16.6	2	15	2	15	25	19.5	12	11.6	19	12.9
Right Peripheral	32	23.5	25	18.6	32	15.4	40	26.2	40	26.2	24	22.8	42	17.5	43	17.3
Left Peripheral	2	18.5	1	14	2	14	1	36	1	35	2	6.5	2	6.5	3	3.6
Right Central	2	7	8	16.7	7	11.7	3	13.3	3	13.6			4	11.3	3	3.6
Ratios of Cent. to Peripheral Displ.	.125	.665	.195	.606	.180	.908	.193	.857		.082	.760		.073	.435	.056	.227
Ratios of Right to Left Displ.	.324	1.075	.363	.628		.227	.463	1.079		.116	1.079	.893	.340	.723	.352	.371

The ratios given in the last line of each table were obtained (*a*) by dividing the *number* of right by the number of left displacements, and (*b*) by dividing the average *values* of displacements to the right by the average values of those to the left. In the line next above the lowest, peripheral and central displacements were also treated in the manner just described. Since in, *e. g.*, the "Right Peripheral" displacements, every displaced point was on the right and also peripheral with regard to the original impression, and a similar thing would be true of all the oblique displacements, these were used twice. "Right Peripheral" was added with "Right," and also with "Peripheral." This, of course, would make the average displacements toward the right or toward the wrist too great; but as the averages were used in the way described only in obtaining the ratios, and as nothing is claimed for these beyond a rough indication of the direction of displacement, the larger values do not appear except as involved in the ratios, and need not be misleading there. The occasional large ratios of right to left average values, particularly observable in the Table of *Mr.* given a little later, are not an indication of greater displacement toward the right, as may easily be seen by dividing the sum of right by the sum of left displacements. The arms indicated in the Tables are in all cases those *on* which the localisation was made.

(2) The subject *Mr.* thought from introspection that he was habitually a strong visualiser, and other work done by him in the laboratory tended to confirm this. In order to shut out the visual image of the arm in the non-visual series, he at first kept a Japanese color-scheme before him, and tried to get an image of that to persist while his eyes were closed. This proved to be a distraction; and he then left himself to the fleeting memory images which happened to be passing, ordinarily seizing upon one at the moment of localisation. He frequently fixed upon the image which was in the forefront of consciousness as his hand was going down in the act of localisation. (It may be noted here that the other subjects thought that when the charcoal point touched the arm the visual image of the part stimulated tended to arise in the mind; but *Mr.* did not notice this tendency, nor was the image of the arm, as in the case of *Py.* and *Ph.*, superposed upon what he was voluntarily visualising.) The results obtained from him show very little difference of average displacement between the non-visual and the visual series with the eyes closed. With open eyes, the average displacements are somewhat smaller. It seems probable that *Mr.* visualised with practically the same degree of vividness in

both the normal and visual series; that he was not as well able as he thought he was to shut out the visual image in the non-visual series; and that in the series with the eyes open the visualising tendency was strongest. The results obtained from him are given in Table II.

(3) The subject *Ph.* substituted another visual image in order to shut out the image of the arm, generally selecting some centrally excited image which harmonised best with the mood of the moment, and fixating that when the signal for the experiment was given. In the intervals between the experiments the attention was turned away from anything connected with the work, and not recalled until the signal was given. Frequently, when there was a very strong tendency to visualise the arm area operated upon, the outer surface of the cheek or the upper surface of the foot was substituted and the impression to be localised was seen on that. The subject was in the habit of voluntarily calling up visual images of colored expanses, and these were frequently seized upon at the moment of localisation. The contact of the charcoal point tended very strongly to arouse the visual image of the area touched, and sometimes, in spite of efforts to the contrary, this image was superposed upon that voluntarily fixated. There were a considerable number of experiments in which the subject was conscious of involuntary visualisation from this sudden superposition or interposition of the image, but the results of those experiments showed no diminution in the amount of displacement. Introspection showed that the intrusion of the visual image of the arm generally took place either simultaneously with the movement necessary for localisation or during the sweep of the arm toward the point touched. This would probably indicate that visualisation took place too late to affect the estimation of the movement. In this case, as in that of the other subjects, no connection could be established between the amount of displacement and the distance above the arm at which the subject usually paused in the act of localisation. See Table III.

(4) The subject *Mn.* made no visual substitution for the arm area. He thought from introspection that he did not visualise at all, but that he localised in terms of movement, shutting out all visualisation with reference to the touch of the charcoal point. It would seem from his introspection that he was able to separate entirely the visual from the organic factor; and the greater amount of displacement in his non-visual series as well as the much smaller displacement in his series with open eyes harmonise with this, and suggest the theory given hereafter of the influence of the purely visual factor. The results will be found in Table IV.

TABLE II.

Reactor Mr.

Unit = 1 mm.

	NORMAL. FOUR SERIES, 130 EXP.						WITH VISUALISATION. FOUR SERIES, 140 EXP.						WITHOUT VISUALISATION. FOUR SERIES, 140 EXP.						WITH EYES OPEN. FOUR SERIES, 190 EXP.					
	Right.			Left.			Right.			Left.			Right.			Left.			Right.			Left.		
	No. of Displ.	Av. of Displ.	No. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.
Peripheral	15	23	28	30.9	22.4	6	21.4	12	22.4	7	27.1	14	23	7	15.1	34	17.6							
Central	4	17				5	15.2			5	30	1	5	7	24									
Right	2	15				1	15																	
Left	23	24	8	32	22	17	2	30	25.7	48	29.4	25	25.7	78	20.6	6	7							
Right Peripheral	16	22.6	24	30.5	26	15	18.8	46	26	10	40.3	28	24	2	25	46	16.6							
Left Peripheral						6	7.8																	
Right Central						5	13.3																	
Left Central																								
Ratios of Cent. to Peripheral Displ.						.409	.372						.014	.192	.105	1.390	.059	.226						
Ratios of Right to Left Displ.	1.500	1.090	.333	1.049	1.153	1.375	.801	.043	1.153	.827	1.463	.827	.896				.070	.360						

TABLE III.

Reactor Ph.

Unit = 1 mm.

	NORMAL. THIRTEEN SERIES, 470 EXP.				WITH VISUALISATION. ELEVEN SERIES, 440 EXP.				WITHOUT VISUALISATION. NINE SERIES, 390 EXP.				WITH EYES OPEN. TWELVE SERIES, 450 EXP.			
	Right.		Left.		Right.		Left.		Right.		Left.		Right.		Left.	
	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.	No. of Displ.	Av. of Displ.
Peripheral	46	18.4	77	23	34	21.8	99	23	9	15.6	41	29.7	44	13.8	85	16.3
Central	6	9.3	1	25	10	12.9	2	11				16	19	10.9	7	5.6
Right	1	15	1	6					1	7	12	24.8	7	11	6	9.8
Left	41	17.9	30	24	80	16.2	5	11.6	67	43.4	14	22.7	33	12.5	21	11.5
Right Peripheral	15	14.2	11	23.6	11	16	55	22.9	9	24.6	72	38.8	40	12.5	51	17.7
Left Peripheral	105	24.3	114	29	71	21.7	49	19.2	62	42.5	28	33.5	44	15.5	43	13.1
Right Central	6	22	1	31	1	8	1	25	2	14	3	31.3	5	9	4	5.2
Left Central	15	15.6			13	18.2	5	9	29	29	5	26	33	12.2	8	11
Ratios of Cent. to Peripheral Displ.	.168	.827	.009	.694	.213	.657	.039	.691	.389	.529	.070	.711	.445	.791	.108	.461
Ratios of Right to Left Displ.	.136	.885	.090	1.143	.073	.427	1.010	1.596	.075	.380	1.643	1.208	.473	.806	.847	.918





(5) In Table V we give the average error corrected as suggested by Mr. Pillsbury<sup>1</sup>. The values for the right and left arms are given separately, and then averaged. It may be noticed that in the case of *Py.* and *Mn.* the error is larger in the visual series than in the normal. This is probably due to the fact that both visualised normally, and when requested to make a distinct effort to do so, found the introspection necessary a distraction. *Py.* was so sure that he could not shut out visualisation that his somewhat larger average in the non-visual series seems best explained also by the distraction due to introspection and a strong effort to perform a difficult task. The difference between the average values in

TABLE V.

	UNIT = 1 MM.	RIGHT HAND.	LEFT HAND.	AVERAGE.
Py.	Normal	20.7	21.2	20.9
	With Visualisation	20.5	26.6	23.5
	Without Visualisation	27.02	30.6	28.8
	With Eyes Open	15.8	15.8	15.8
Mr.	Normal	23.6	43.5	33.5
	With Visualisation	21.7	36.4	29.0
	Without Visualisation	44.3	24.6	34.4
	With Eyes Open	28.0	17.9	22.9
Mn.	Normal	19.6	23.5	21.5
	With Visualisation	26.8	28.1	27.4
	Without Visualisation	45.3	41.5	43.4
	With Eyes Open	12.3	11.9	12.1
Ph.	Normal	23.8	33.3	28.5
	With Visualisation	24.9	23.9	24.4
	Without Visualisation	35.1	39.06	37.08
	With Eyes Open	16.9	15.6	16.2

<sup>1</sup>AMERICAN JOURNAL OF PSYCHOLOGY, VII, 1, pp. 43, 44.

the normal and non-visual series of *Mr.* is hardly greater than might be accounted for by mere chance.

The great difference between the *limina* as given by us in the Table and found by Mr. Pillsbury (*AM. JOUR.*, VII, p. 51) is worthy of notice. In the experiments of the latter the subject moved about on the skin until the sensation was judged to be like that roused by the stimulus. In our work this normal ending of the localising movement was cut off. In the absence of a familiar group of elements (cutaneous sensations and visual associations connected with the second contact), recognition is not so easy as before, and, consequently, large errors are made in the judgment. Striking evidence of this was the fact that when the perpendicular was let fall from the point of localisation, the subject, as soon as the second contact was sensed, almost always recognised the direction of his error, and very frequently its approximate value. With some of the subjects there may have been a slight tendency to correct the direction of displacement ascertained in this way. In the case of the subject *Ph.* this source of error was eliminated by dropping the perpendicular after the metric rule was laid on the arm. When the experiment was tried of laying the metric rule on the arm after the stimulus, but before the localisation, the subject requested that it should not be done, since it effaced the impression to be localised.

#### B. GENERAL RESULTS.

An examination of the Tables will show that the displacements were mainly toward the wrist. Mr. Pillsbury gives as one important factor in the direction of displacement the overestimation of movements due to flexion when approached from extension, and the underestimation of those due to extension when the arm is much flexed, and quotes Loeb<sup>1</sup> in support of this view. The latter had explained the errors in estimation by the differences in extent of movement for the same amount of *innervation*. Mr. Pillsbury says, however: "It is not that equal innervation sensations correspond to equal lengths of movement, but that equal lengths of movement give greater amounts of motor sensations, and these are taken to mean greater distances on the visual space diagram." The fact that at least one subject in this investigation and one in Mr. Pillsbury's were able to shut out the visual space diagram in the act of localisation, would militate against the theory of any *constant* translation of motor sensation into visual

<sup>1</sup> *Untersuchungen über den Fühlraum der Hand.* Pflüger's Archiv, XLI, pp. 107-128. *Untersuchungen über die Orientierung im Fühlraum der Hand und im Blickraum.* Ibid., XLVI, pp. 1-46.

space. Loeb thinks that movements in flexion, either with or without visualisation, give a greater amount of organic sensation than movements in extension of equal range when the arm is much flexed. A very simple introspection of ordinary experiences seems to make this evident. It may be, then, that the movement accompanying the greater amount of sensation is simply judged greater. Our normal judgment of distance, largely in terms of visual space, may have become so habitual that it will influence more or less any space judgment even under artificial conditions; but the fact that any form of a visual space diagram may be shut out and movements in flexion still be overestimated, may probably be interpreted to mean that a visual translation is not necessary. The results of this investigation, however, appear to confirm the general theory. The arm previously extended on the knee or hanging by the side was flexed in the act of localisation: the movements were overestimated, and the localisation fell short of the point stimulated. The arm resting on the chest, and in that position much flexed, was extended in the act of localisation: the movement was underestimated, and the localisation went beyond the point touched.

Table VI shows some results obtained from the various subjects with movements in extension.

Only a few experiments of this kind were made, as it was evident from the first that the results were of the same type as those in flexion. It may be noticed that there is not the same predominance of left over right displacements as in the preceding Tables. The small number of experiments would, of course, make any average a very crude one; but in any case the fact easily admits of explanation. The hand with which the localisation was made rested on the chest, approximately in the median plane. The movement concerned in localisation was largely a movement toward the front. The results are therefore significant mainly for peripheral and central displacements. For three of the subjects, however, "right peripheral" displacements predominate on the right arm and "left peripheral" on the left, a fact which is entirely in keeping with our theory of the underestimation of movements in extension.

The predominance of displacements to the left over those to the right on the right arm (see Tables I, II, III and IV) falls easily under our theory. This predominance is seen in all the subjects except *Mr.* The left hand in localising on the right arm stopped short of the point stimulated, as a result of the overestimation of movements in flexion. But on the left arm the left displacements are also dominant, and this seems to contradict our theory. Examination of the Tables, how-



ever, shows that these left displacements on the left arm are not so largely in the ascendancy as on the right arm. Two influences were apparently at work. The right arm tended to make a greater excursion than the left, as will be explained hereafter, and so to pass beyond the stimulated point; but this tendency was counteracted in part by the influence of movements in flexion. It should be noted that in our work the movements of the right and left arms were made in series, and so were neither simultaneous nor immediately successive. The intervals between two series with the same arm were from ten to twenty minutes.

Loeb<sup>1</sup> describes some experiments which, though made for a different purpose, give substantially our conditions and are confirmatory of our results. His object in the special part of the investigation from which we quote was to show that in simultaneous movements of the hands in the same direction, the one moving laterally<sup>2</sup>, the other medianly<sup>3</sup>, and equal movements being intended, the median excursion is always greater than the lateral. In describing his work, Loeb says: "Die Versuchsperson steht wieder so vor dem Faden, dass derselbe ihre Medianebene im Kernpunkt unter einem rechten Winkel schneidet. Dagegen ist Ausgangspunkt der Fühlstrecken diesmal nicht der Kernpunkt, sondern je ein durch eine kleine Klemme markirter Punkt 200 mm. nach rechts und links vom Kernpunkte. Dieser Abstand entspricht beim erwachsenen etwa der Entfernung des adducirten Armes von der Medianebene; die linke Hand der Versuchsperson liegt an der linken, die rechte Hand an der rechten Marke. Der Faden ist wieder mit Daumen und Zeigefinger gefasst." He continues, and for his purpose this is the important point: "Die Aufgabe der Versuchsperson besteht darin, gleichzeitig auf Kommando beide Hände nach derselben Richtung entweder nach rechts oder nach links bei geschlossenen Augen mit gleicher Geschwindigkeit zu bewegen. Die Bewegung soll wieder so erfolgen, dass nach dem Urtheil der Versuchsperson der Abstand beider Hände vom Ausgangspunkt in jedem gegebenen Augenblick gleich ist. Die Bewegung soll sistiren, sobald die eine der beiden Hände an der vom Experimentator angesteckten Grenzmarke anlangt. Der Versuchsperson wurde gesagt, auf welcher Seite sie die Grenzmarke treffen wurde. Der Abstand war ihr aber unbekannt."

<sup>1</sup>*Untersuchungen über den Fühlraum der Hand.* Pfüger's Archiv, XLI, pp. 118-119.

<sup>2</sup>Laterally = from the median plane outward.

<sup>3</sup>Medianly = from the side toward the median plane.

We have selected the "Mediale Fühlstrecke" from one of Loeb's typical series, and give the results :

LEFT HAND.	RIGHT HAND.
185	300
250	200
215	210
120	220
190	240

These "Mediale Fühlstrecken" were evidently obtained under conditions very similar to our own, as far as concerns the relative length of the excursion of the two hands; and we find that the right hand made on an average a much greater excursion. From further experimentation by Loeb for the purpose of showing that it is important for the result whether the point which marked the limit of the excursion of one hand lay on the lateral or median side of the axillary line, we can again compare the "Mediale Fühlstrecke" when this mark lay on the lateral side. The excursion of the right hand is here, too, larger than that of the left. The explanation of this, since it is not entirely germane to our discussion, we reserve for an appendix.

It will be noticed that for all the reactors there were some central displacements. The introspection of one of them showed that in some of these cases there was inattention, and consequently random localisation. Observation on the part of the experimenter showed that there were now and then accidental changes of position which brought the arms into such relation that *less* movement in flexion was necessary to make a central than a peripheral displacement. Some centrals were, no doubt, due to absolute chance. In the experiments with the eyes open, central displacements are more numerous than elsewhere. Nearly all of these occurred in the earlier series. There was probably confusion resulting from the failure, at first, to translate into the more extended visual space, now introduced quite importantly, the cutaneous space which was predominant in the non-visual experiments. The visual extension from wrist to stimulus-point, obtained when the eyes were open, would be likely to bring about an overestimation of the movement centred necessary for localisation. Some of the smaller central displacements were obtained as vacillations of the hand after localisation. There seemed to be indifference of localisation within certain limits, the hand often wandering about a more or less circular area with a radius of perhaps 4-10 mm., though no attempt was made to determine it exactly.

The average displacement for all the subjects is smallest with the eyes open. For two of them, that for the non-visual

series is the largest. Visualisation apparently lessens the amount of displacement. The visual factor being now given a place in combination with the other factors concerned in localisation, the constant error is smaller.

#### C. SUMMARY.

(1) The displacement toward the wrist found in these and the related experiments of Mr. Pillsbury seems to be due to *overestimation of movements in flexion and underestimation of those in extension*. We have suggested in explanation of this that as flexion, approached from extension, gives a greater amount of organic sensation than extension, approached from flexion, the *amount of sensation* is in the one case judged a greater, in the other case, a smaller distance.

(2) When the normal ending of the localising movement (pressure upon the skin) is cut off, *the limen of localisation is much greater*. We have explained this by showing that the removal from the total experience of one or a number of familiar elements, artificially or otherwise, makes recognition more difficult, and that this difficulty of recognition is expressed in a greater error of localisation.

(3) *With visualisation the amount of displacement is lessened*. This greater accuracy results, in general, from the emphasising of a factor which, in ordinary experience, is very influential in tactual localisation.

(4) In movements not simultaneous, for distances estimated as equal, *the right arm tends, for movement in flexion, to make greater excursions than the left*. (Cf. Appendix.)

#### D. APPENDIX.

Before attempting to suggest even a tentative explanation of the tendency of the right hand (as found in these experiments) to make the greater excursion, it would, perhaps, be better to give the evidence for it as found here and elsewhere. In this investigation, three of the subjects show the tendency. Some crude experimentation in the general drill-work of the Cornell laboratory showed in the case of a large majority of the eighteen subjects a slightly greater excursion of the right hand than of the left. An arrangement of Loeb's tables, so as to bring them approximately under the same conditions as our own, tends to confirm our results. In the experiments mentioned above, however, the movements were made from the side toward the median plane. They were movements in flexion. The question arises as to which arm would make the greater excursion when moving from the median plane outward—movement in extension. The drill-experiments in the labor-



atory showed that for the majority of the subjects, the *left* hand made the greater excursion in the movements last described. In the table given by Loeb (p. 110 of article previously quoted) we find a greater excursion for the *right* hand, when moving from the median plane outward, for four out of six subjects. On pp. 112 and 113, the greater excursion is shown for the right hand in the case of three out of four subjects; yet it must be remembered that Loeb quoted results which were typical as regards his own question, and that they were not selected with any reference to ours. On p. 114 of the same article he says, with reference to movements from the median plane outward, that for right-handed persons, not mechanics, the *left* hand makes the greater excursion. Sanford<sup>1</sup> makes, tentatively, a similar assertion. Hall and Hartwell<sup>2</sup> experimented upon a large number of subjects, but chiefly upon two right-handed and two left-handed persons. They say that in simultaneous movements from the median plane outward, the "preferred hand" made the greater excursion. However, when the movements were successive instead of simultaneous, there was a tendency to reduce the excess of the preferred hand, and, *in some individuals*, to make an equal or even a greater error in favor of the non-preferred hand.

It is, perhaps, well to note that Mr. Pillsbury<sup>3</sup> found in all of his subjects a tendency to a larger number of peripheral displacements when localising with the right hand than with the left. This would seem to indicate that the left hand made the greater excursion in movements toward the median plane. In our own experiments two of the subjects have similar and two have contrary results. However, as has already been hinted, the exact position of the arm operated upon, relatively to the other, would materially affect the interpretation of these results, and this position was not regulated with any reference to our present question, either in the experiments of Mr. Pillsbury or in our own.

That there are inconsistencies and apparent contradictions in the outcome of the investigations just quoted, is not surprising. None of them, except those of Hall and Hartwell and the drill-work of the Cornell laboratory, were conducted with any view to Bilateral Asymmetry of Function. A large number of factors other than those affecting the question at issue would enter into such experimentation, and would, to a greater or less degree, vitiate the results for our purposes. Yet there are in them some suggestions. Hall and Hartwell

<sup>1</sup>"Laboratory Course in Psychology," p. 35.

<sup>2</sup>"Bilateral Asymmetry of Function," *Mind*, O. S., IX, pp. 93-109.

<sup>3</sup>AM. JOUR. OF PSYCHOL., VII, p. 52.

say that the right arm is sometimes one-third stronger than the left. Loeb and Sanford agree that, in the case of mechanics, the right arm makes the greater excursion. This may point to a loss of sensation (automatism, lapse of attention) due to habituation; the less noticeable amount of sensation being judged the smaller distance, the right hand would move too far. We find in the various results quoted some indication that with right-handed persons, not mechanics, the right hand makes the greater excursion for movements in flexion, but the left hand for movements in extension. This might also be explained upon the assumption of loss of sensation due to habituation. The movement of the right hand in flexion, though still giving distinct sensations and requiring effort, is underestimated as compared with that of the left, because the right hand, being used more frequently, has been reduced to a greater degree of automatism. In movements of extension, *i. e.*, from the median plane outward, the movement is one of relaxation, the sensations caused by the flexion being lost as the hand moves outward,—at least, through small distances. Since, when both hands are held in the median plane, less sensation results from the flexion of the right arm than from that of the left, there is less to be lost in the outward movement, and the right hand does not go so far as the left. We admit, however, that this, the only explanation which we can now offer, is not very satisfactory, and that it applies, in any case, only so far as the outward movement is a relaxation of tension.

The mixed results before us can be, at best, only suggestive. Continued and careful experiments upon a large number of subjects under conditions from which, as far as possible, all factors except those directly affecting the relative movements of the two arms have been eliminated, would be necessary to give sufficient data for any definite theory. Indeed, it may be true, as suggested by Sanford in connection with the same subject<sup>1</sup>, that the judgments of symmetry of position and motion rest upon such complex combinations of cutaneous and organic sensations that the results will always be variable from one subject to another and in the same subject at different times. There must, however, be conditions for this variation, and the complexus of sensations may not be able to resist all analytical attacks.<sup>2</sup>

<sup>1</sup> *Op. cit.*, p. 36.

<sup>2</sup> Experiments upon this question are now in progress in the laboratory of the Randolph-Macon Woman's College.

## A STUDY OF CONVERSION.<sup>1</sup>

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Throughout Christianity, down to the modern "revival meeting," a phenomenon has been prominent, commonly called "conversion." In the Greek, Roman Catholic, Lutheran, Anglican, Episcopal and some other churches, it has a correspondence in "confirmation." It is characterized by more or less sudden changes of character from evil to goodness, from sinfulness to righteousness, and from indifference to spiritual insight and activity. The term conversion is used in this study in a very general way to stand for the whole series of manifestations just preceding, accompanying and immediately following the apparently sudden changes of character involved. This is an attempt to get at the mental and spiritual processes at work during conversion rather than to establish any doctrines or definitions.

In order to get together a number of typical cases of sudden awakenings, to compare them, to discover what life forces are at work and to see where they belong from the standpoint of modern psychology, the following list of questions was sent out promiscuously:

"This inquiry is undertaken in the belief that religious experience is the deepest, most sacred and important of life, and that collating a large number of facts will help much in understanding the laws of the spiritual life. You are earnestly requested to assist by recording your own personal experience, anonymously if preferred, in the exactest manner. The confidence should be full in replying, and will be most sacredly respected.

"The results of the research will be sent to those making returns, if desired.

"You need not be confined to the outlines. If you cannot answer all questions, notice those only which appeal most strongly to your experience.

<sup>1</sup> The following article is a continuation and extension of two lectures given before the Harvard Religious Union Nov. 19th, 1894, and March 11th, 1895, respectively.

I am indebted to Dr. G. Stanley Hall for sympathy and helpful suggestions in carrying out the following research, both before coming to Clark University and while here; my wife has given much valuable assistance in the preparation of the article; Prof. Lillie A. Williams of the New Jersey State Normal School has furnished much of the raw material for the study from her classes; Dr. John Bigham of De Pauw University has assisted in the same way. I wish to thank not only these persons and several members of Clark University, but all those who have been self-sacrificing enough to furnish the facts used out of their own experience.

"A. CONVERSION, CONFIRMATION, OR ANY SUDDEN AWAKENING.

"I. What religious customs did you observe in childhood, and with what likes and dislikes? In what ways were you brought to a condition to need an awakening—faulty teachings, bad associations, appetites, passions, etc.? What were the chief temptations of your youth? How were they felt and how did you strive to resist? What errors and struggles have you had with (a) lying and other dishonesty, (b) wrong appetites for foods and drinks (c) *vita sexualis*; what relation have you noticed between this and moral and religious experiences? (d) laziness, selfishness, jealousy, etc.

"II. What force and motive led you to seek a higher and better life:—fears, regrets, remorse, conviction for sin, example of others, influence of friends and surroundings, changes in beliefs or ideals, deliberate choice, external pressure, wish for approval of others, sense of duty, feeling of love, spontaneous awakening, divine impulse, etc.? Which of those or other causes were most marked and which were present at all?

"III. Circumstances and experiences preceding conversion:—any sense of depression, smothering, fainting, loss of sleep and appetite, pensiveness, occupation disturbed, feeling of helplessness, prayer, calling for aid, estrangement from God, etc.? How long did it continue? Was there a tendency to resist conviction? How was it shown?

"IV. How did relief come? Was it attended by unnatural sights, sounds, or feelings? In what did the change consist:—breaking pride, public confession, seeking the approval of others, feeling God's forgiveness, sudden awakening to some great truth, etc. How sudden was the awakening?

"Did the change come through or in spite of your own thought, deliberation and choice? What part of it was supernatural or miraculous?

"V. Feelings and experiences after the crisis:—sense of bodily lightness, weeping, laughing, joy, sorrow, disappointment, signs of divine pleasure or displeasure, etc. How differently did you feel towards persons, nature, ideas, God, etc.? Did you have unfulfilled expectations or disappointments?

"VI. Comparison of life before and after:—changes in health, habits, motives, conduct and in your general intellectual and emotional attitude. Did you undertake any private religious acts, as Bible reading, meditation, acts of self sacrifice, prayer, etc.?

"VII. Were there any relapses from first experience? Were they permanent or temporary? Any persistent doubts? What difficulties from habits, pride, ridicule or opposition of others, etc., had you, and what methods did you adopt? Do you still have struggles in your nature? Does that indicate that the change was not complete? How have you and how will you overcome them? What needed helps, if any, were wanting at any time?

"VIII. Did you always find it easy to follow the new life and to fit into its customs and requirements? If not, how did you succeed—by habit, pressure and encouragement of friends, a new determination, a sudden fresh awakening, etc.?

"IX. State a few bottom truths embodying your own deepest feelings? What would you now be and do if you realized all your own ideals of the higher life?

"X. What texts, hymns, music, sermons, deaths, places and objects were connected with your deepest impressions? If you

awakening came in a revival meeting, give the circumstances and methods used. What do you think of revivals?

"XI. If you have passed through a series of beliefs and attitudes, mark out the stages of growth and what you feel now to be the trend of your life.

#### "B. GRADUAL GROWTH.

"If your moral and religious life has been a more or less steady growth, kindly describe it, including the following points and any others of importance which occur to you, in addition to I, II, IX and XI above:

"I. Influences, good and bad, which have been especially strong in shaping your life:—parental training, work, friends, church, music, art, natural phenomena, deaths, personal struggles, misfortunes, etc.

"II. Were there periods at which growth seemed more rapid; times of especially deepened experience; any sudden awakening to larger truth, new energy, hope and love? At what age were they? How did they come:—some crisis, a death, meditation, some unaccountable way, etc.?

"III. Have you had a period of doubt or of reaction against traditional customs and popular beliefs? When and how did it begin and end, if at all? Have you noticed any relapses or especially heightened experiences? How did they come and with what were they connected?

"IV. Have you felt or known any special revelation of thought or feeling to come to you, and in what way? Has your growth come through, or in spite of, your own thought, deliberation and choice.

#### "C. SUPPLEMENTARY FACTS.

"(a) Describe any faults or acts you have committed in which you knew at the time they were wrong. Why did you do them?

"(b) What sudden awakening of power have you noticed in yourself, in others or in animals:—speaking, singing, playing, loving, hating, reasoning, etc.? How sudden was it? How do you explain it?

"(c) Describe any sudden changes which have come into your character or in your attitude toward things or persons. How and why did it occur?

"(d) Have you ever had a time of great uncertainty which of possible courses to pursue,—in choosing a calling, in love, whether to do an act or not, etc.? Describe accurately and minutely your feelings preceding, during and after the struggle.

"(e) If you have ever broken a habit, describe all the accompanying experiences and feelings.

"Always give age, sex, temperament and nationality."

The present article concerns itself only with groups A and C. It has been difficult to separate the cases into the two groups of sudden awakenings and gradual growth. Unless there has been a rather marked change, they have been put in the latter class, except in those cases of revival experience in which the real religious life was thought to begin there, although the contrast in habits and feelings was not great. After separating them the number of sudden awakenings sufficiently complete to use at all in tabulation was 137. Of these, 51 were from males, 86 from females. The difference between them makes it necessary to treat them separately for the

most part. By far the majority were records of conversions occurring under 27 years for males and under 23 for females. For this reason the scattered ones from that age up to 70 years are omitted in all places where per cents and averages are used, and always, unless otherwise stated. The following is thus very largely a discussion of adolescent conversion. (Adolescence extends to about 25.) Of the whole number, by far the majority are Americans, and pretty evenly distributed among the states. Besides there are 6 English, 3 Canadians, 2 Japanese, 2 negroes and 1 German. In most instances the church connection was not given. Almost all, however, are Protestants, and nearly all the denominations appear to be represented. At least 4 are Episcopalian. Nearly half were conversions occurring at revival meetings. The rest were in regular church service, at confirmation, and at home. The per cents showing the circumstances under which the conversions occurred are given in:

TABLE I.

CIRCUMSTANCES UNDER WHICH CONVERSION OCCURRED.	Male. %	Female. %	Both Male and Female. %
At revival or camp meeting,	48	46	47
At home after attending revival,	5	6	5
At all under revival influence,	53	52	53
At home and generally alone,	32	16	21
At regular church, or prayer meeting, or confirmation,	4	25	18
Circumstances not given,	11	7	9

Among other things, it should be noticed from Table I that revival meetings play an important part in conversion, either by directly inducing a change in the life, or in leaving impressions which are worked out immediately afterwards; but that conversion is a phenomenon which so far belongs to growth that about one-fifth of the entire number (21%) have taken place independently of immediate external influence. When it is remembered that revivals are generally carried on with much emotional pressure in the way of exhortation, songs, music, prayers and personal influence, it is significant that the per cent. of revival conversions is about the same for males and females; that of the remaining number more of the male than of the female conversions (32% vs. 16%) work themselves out at home; and that one-fourth of the female conversions, as against only 4% of males, occur under the more quiet influences of the usual church services.

## THE AGE.

The four curves below, in Figures I and III, show graphically the frequency of conversions for different years. Spaces to the right show the ages from 7 to 27 years. Distance upward stands for per

cent. of the whole number for each year. For example, in the case of males 20% of the conversions were at 15 years.

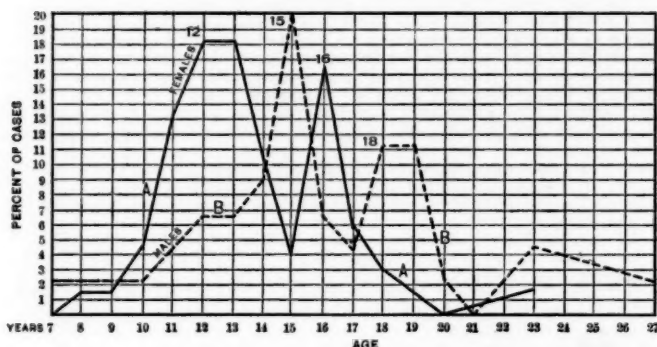


FIGURE I. Showing the periods of greatest frequency of conversions.

Since the females were nearly all above 18 and the males above 20 years at the time of making the record, the probability is the same that any conversion would fall within any year previous to that. The curves would then be straight lines parallel to the base. The value of the curves is in their irregularity. Curve A for females shows that below 10 years of age there are very few conversions. The number increases from 10 years, to 12 and 13, which is the period of greatest frequency. From that time they become less frequent until 15 years. At 16 the curve rises almost to the height of the first rise. Beyond 17 there is a gradual decline. Similarly, curve B for males begins at 7, rises gradually to 14, culminates at 15, declines to 17, has a second elevation at 18 and 19, and gradually falls after 19.

The character of the curves is so striking that some of their more significant features will be considered:

(a) The years of greatest frequency of conversions correspond with periods of greatest bodily growth for both males and females.

Curve B, for males, begins earlier, rises more gradually and culminates 2½ years later than A. These points have an analogy in physical development. Roberts<sup>1</sup> shows that in the degree of physical maturity of men and women, 12½ years in females corresponds to 16 in males.

The analogy between the greatest height of A and B and the period of most rapid growth is also of interest. The curves in Figure II are adapted from Donaldson,<sup>2</sup> and are from Stephenson's<sup>3</sup> averages of the measurements of Bowditch<sup>4</sup> and Roberts.<sup>5</sup>

<sup>1</sup> Chas. Roberts, "Physical Maturity of Women." *Lancet*, London, July 25, 1885. Roberts' report is based on the researches of Bowditch, Chadwick and himself.

<sup>2</sup> H. H. Donaldson, "The Growth of the Brain." New York, 1895.

<sup>3</sup> Stephenson, *Lancet*, 1888.

<sup>4</sup> Bowditch, "The Growth of Children." Report of the State Board of Health of Massachusetts. Boston, 1877.

<sup>5</sup> Roberts, "Manual of Anthropometry," 1878.



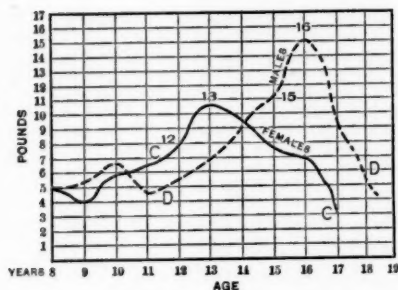


FIGURE II. Showing annual increase in weight of boys and girls.

They show that females increase in weight  $10\frac{1}{2}$  pounds between 12 and 13, and that males increase 15 pounds between 15 and 16, which is  $2\frac{1}{2}$  and  $3\frac{1}{2}$  pounds, respectively, more than the gain between any other years. In the case of females this exactly agrees with curve A. For the males the increase in weight comes a little later than in the conversion curve; but the difference is not so great, if it is noticed that the greatest increment in D is close to the 15th year.

(b) There is a correspondence between the periods of most frequent conversions and puberty in both sexes. The time of accession to puberty varies slightly. The phenomena by which its advent is judged are also variant. Table II is based on the age at which the menses appear. Using other physical signs to indicate its advent, would doubtless make the average age somewhat less. "In infantile cases (of true menstruation) the attention of the mother is

TABLE II.

Comparing the age of accession to puberty with the time of conversion.  
(Females.)

FEMALES.	Age of greatest frequency.	Average age.
Accession to puberty—		
Italians <sup>1</sup> (wealthy),	13	14.5
Italians <sup>1</sup> (artisan),	13	14.8
Italians <sup>1</sup> (rustic),	15	15.5
English <sup>1</sup> , 500 cases,	?	14.7
American <sup>1</sup> , 575 cases,	14	14.8
American <sup>2</sup> , 125 cases,	?	13.7
Grouping the foregoing; total,	13.7	14.7
Age of conversion—		
Those at revivals, 46 cases,		13.1
Those not at revivals, 40 cases,		14.6
All together, 86 cases,	12.5	13.8

<sup>1</sup> Chas. Roberts, "Physical Maturity of Women."

<sup>2</sup> Helen P. Kennedy, M. D., *Pedagogical Seminary*, June, 1896.

generally attracted by the womanly development of the child before there is any appearance of the menses."<sup>1</sup> The normal age of puberty is, in fact, generally given in medical records at from 12 to 14 in case of females, and about 2 years later in males.<sup>2</sup> Taking the general group of physical signs<sup>3</sup> as the indication of dawning adolescence, making it 12 or 13 for females and 14 or 15 for males, the agreement with the culmination of curves A and B is of interest.

There is, of course, room for indefinite mental gymnastics in using such statistics. In a general way their points of agreement are interesting. The average age of female conversion, 13.8, differs only by a small fraction from the age of most frequent accessions to puberty, as shown from nearly 4,000 cases. The average age of revival conversions is  $1\frac{1}{2}$  years earlier than of those which occurred at home and under the quieter church influences. The average age of conversions not at revivals, 14.6, differs by one-tenth of a year from the average age of puberty. If one should regard these as the normal conversions which take place in the absence of emotional pressure, the coincidence is important. The points of disagreement in the statistics are evident and will be noticed later.

The observations on boys have been too few to obtain tabular results as to the age of puberty. It is generally agreed to be from 2 to  $2\frac{1}{2}$  years later than that of girls. It will be noticed that curve B follows curve A by  $2\frac{1}{2}$  years and repeats most of its details. The average age of male conversions is 15.7 years, as against 13.8 for females. If the female conversions come near puberty, this difference of about 2 years throws the average age for males at about the corresponding period. It thus appears that there may be a normal age for conversion at about the beginning of adolescence. It is suggestive to notice in this connection that nearly all people, including the savage races, have ceremonies upon the advent of puberty, such as torture, circumcision, knocking out teeth, tattooing, changing the name, nearly all of which are religious rites and intended to initiate the child into a new life.<sup>4</sup>

If the correspondence appears so close between puberty and the average age of conversion, then what of the very early conversions and also those which come much later?

(c) *Early conversion.* It is possible that in the case of the conversion of children, it may be accompanied by, or be the accompaniment of, the awakening on the physical side. The facts have not yet been gathered sufficiently to establish a law of growth in regard to the time of the awakening powers of the youth in general. They are quite satisfactory concerning the age distribution of the time of accession to puberty. The instances are numerous of the precocious development of the reproductive system, and the range extends all the way from 1 or 2 years upward.<sup>5</sup> The distribution, according to years, of the 575 American cases of females from Roberts' report used in Table II are representative. Taking them on a basis of 100 cases, they extend from 10 to 20 years, inclusive, according to the following series: 1, 5, 9, 18, 25, 20, 14, 3, 3, 1, 1. This is approximately the range of female conversions. Other sug-

<sup>1</sup> R. P. Harris, *Am. Journal of Obstetrics*, 1870-71.

<sup>2</sup> S. S. Herrick, "Reference Hand-book of Medical Sciences," VI, p. 70.

<sup>3</sup> For a description of the bodily changes at adolescence, see G. Stanley Hall, "Training of Children and Adolescents," *Ped. Sem.*, June, '01. Dr. Burnham, "The Study of Adolescence," *Ped. Sem.*, June, '01.

<sup>4</sup> Daniels.

<sup>5</sup> For an introduction to the extended literature of the subject, see Index Catalogue of the Library of the Surgeon General's Office, United States Army, Washington, 1890, XI, p. 761.

gestive comparisons appear: 63% of the males converted before 14 mention sexual temptations among those of childhood, and generally as the most prominent; the rise of curve A just preceding puberty is more sudden than that of B, which agrees with Harris' statement that "infantile puberty is more common in the female than in the male sex;" the more gradual rise of B throughout than of A, is also true of D as compared with C; male conversions begin at a correspondingly earlier age than do the female, and a study of precocious puberty seems to show the same thing.<sup>1</sup>

Other causes for early conversion may be seen from these extracts:

*F.*, 11.<sup>2</sup> "Had deeply religious parents; was always in some sense a Christian; a sermon by my father in childhood thoroughly frightened me, and its effects never left me; was tormented with fears of being lost."

*F.*, 11. "Deep impression was made by a story of a woman who died saying, 'A million dollars for a moment of time;' I was overcome by fear of sudden death."

*F.*, 11. "My early life was careless and happy as a bird's; first time religion seemed meant for me was at a revival, when Mr. M. preached on the crucifixion; he drew a vivid picture of it, and told the congregation they had nailed Him to the cross; my childish heart was broken; felt I could do nothing to atone for making Christ suffer."

*F.*, 10. "Was a naughty child, and was left early without a mother and without education; at a revival meeting several women urged me to go forward; they told me mother could see all I was doing and wanted me to go."

*M.*, 7. "Heard one person tell another of a third person 'confessing her sins;' resolved I would do the same."

*M.*, 11. "Was mostly the influence of my seatmate; when he went to the altar I thought, 'Why, if he can be a Christian, I can, too.'"

*M.*, 8. "Sickly as child, prematurely developed intellectually, and called the 'boy preacher' when 8."

*F.*, 11. "When 8, the death of my brother made a deep impression on me; it awakened thoughts of the future; at 9 years of age I attended a revival, and wanted to become a Christian; did try to be better."

*M.*, 11. "Had a sudden sexual awakening at 7 years; it came over me all of a sudden that there was more to life than I had expected."

These instances are typical. Prominent among the forces at work to bring about the conversion of children are overtraining, emotional excitement, mere imitation and precocity. Looking through all the cases before 12 and 14 for females and males, respectively, and estimating the number of them in which any or all of these four causes are present, we have Table III. The per cents show the frequency rather than the importance of each of the causes. For example, in one-half of the cases of females converted before 12, imitation was present.

<sup>1</sup> I feel like throwing out the caution here that although these sets of phenomena are closely related in time, they probably have very little causal connection. The development of the reproductive system is perhaps, biologically, at the basis of this growth crisis in early adolescence, but is only one of the phenomena in the general awakening.

<sup>2</sup> *F.* indicates females, *M.*, males. The number following always stands for the age at conversion.

TABLE III.

*Showing the frequency of certain causes leading to early conversion.*

CAUSES HASTENING EARLY CONVERSION.	Females. %	Males. %
Intense religious training in childhood present in	71	64
Strong emotional pressure present in	86	73
Imitation present in	50	64
Precocity, or hastened seriousness through deaths, etc., present in	43	36
Any one of the above forces present in	100	100
Permanent results,	57	40
Temporary results ("backsliding"),	53	60

That is, in every instance of early conversion, at least one of these causes was acting. The table is only intended as suggestive. The separation by years may lead to false impressions. Many conversions at 11 appear more mature and healthy than others coming much later.

(d) *The second rise in the curves.* Both curves rapidly decline after the first culmination, and have a second rise at 16 and 18 respectively. So close is the correspondence that the time between the climaxes of each is the same (3½ years), the depressions are about equal, and the relative heights of the first and second rise of each curve are similar. This came as a surprise, and I am able to find nothing like it in physical growth. The cases themselves seem to throw some light into it. A few of them mention an impulse to conversion at about the beginning of adolescence; it then dropped out of their thought and was revived again later. The following are typical:

F., 16. "When 12 I had an impulse to go to the altar with two girl friends, but something kept me back; (when 16) in a little meeting I felt serious; my friend near me wanted me to go to the altar, and I thought on it and went."

F., 16. "When 12 or 13, at the advice of an old woman, I asked God to take my heart; did feel very happy (was confirmed at 16); never have felt so sincere and earnest, and anxious to be good."

F., 17. "Had made start at 15 in revival meeting, but did not join church, and let it all pass over; (when 17) I felt the love and mercy of God; after an hour of pleading and prayer, I felt relief from my sins."

F., 16. "I began to feel conviction at 11 years of age."

F., 16. "I experienced a sort of half conversion two years before."

From these quotations it would appear that there is a normal age for conversion at about the beginning of adolescence. If that is

not complete or is resisted, a relapse follows. Then there is another time of aroused activity from two to four years later. This appears to be a normal ebb and flow of religious interest. Curve B shows signs of a third fluctuation at 23 years, but the data are too few at that period to allow any inference.

Another cause of the second increments at 16 and 18½ years seems to be that, through some accident, or some defect in early training, the person is not sufficiently developed to respond to spiritual influences at the first normal period.

*F., 16.* "When 10 years old mother died; I lost interest in everything; I felt dazed and lived in a sort of dream until 16, when I attended revival; had intense remorse; with tears came relief and joy; my whole life was changed from that hour."

*F., 17.* ("I was carefully trained and taught to pray); when 14 I had companions who laughed at religion; I became like them; often had stings of conscience; (when 17) attended meeting; felt that God had forgiven my sins."

*F., 18.* "As child of 9 was petted and spoiled; was much with people who cared little for religion; when 18, the downfall and death of a friend I had trusted set me to thinking; cried to God for mercy and forgiveness."

*F., 16.* "Parents were agnostic; no Christian influence, but the contrary; felt need of religion."

*M., 16.* "Was a wild, wicked boy; father took pride in my wildness; had been to an uproarious wedding; when I got home I felt condemned; awful impression that death had come; unspeakable joy sprang up."

*M., 18.* "Was not raised in a religious family; was the first of my family, except mother, to become a Christian."

Almost all the cases occurring at the later periods fall under those two headings. There are various other causes, as suggested in the following:

*F., 17.* "Had made many resolutions to be a Christian, but pride kept me from telling it."

*F., 18.* "Had suffered for years wanting to be a Christian and not knowing how."

*M., 19.* "From earliest boyhood had longed to be a Christian; lived a careful, good life, in hope of being accepted of God because I refrained from evil."

*F., 16.* "From 10 to 16 I only cared to have a good time, and let myself drift along."

*M., 18.* "I called myself morally upright, never believing what I said exactly."

It is possible, also, that there is a normal period of intellectual awakening which follows the physical and emotional disturbances at the beginning of adolescence. The later cases seem to be more mature.

We may say that in some the cause of the second increments in the curves may be: an intellectual ripening for religious insight; a natural fluctuation of religious interest; some defect in early training; some accident which retards growth; or some trait of character, such as reserve, pride or willfulness, which has prevented a response to the first impulses.

Putting together the male and female cases, and plotting them on a scale to show the per cent. at different years, gives curve E, Fig-

ure III; the average of all the ages is 14.4 years. Using that as the height of another curve which disregards the minor irregularities in E, we have curve F, which is very roughly the curve of frequency of adolescent conversions. If the cases which constitute this study are representative, it appears that early adolescence is the golden period at which there may be a definite, radical readjustment of one's religious nature.

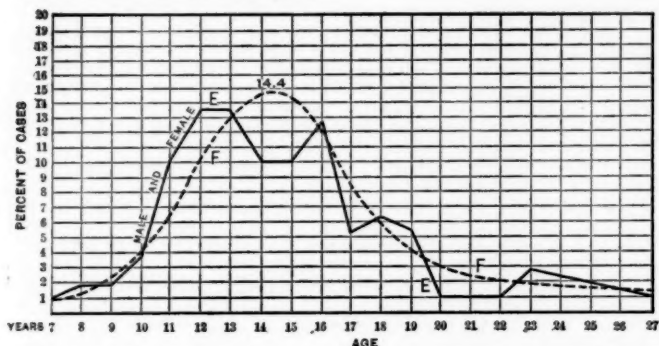


FIGURE III. Showing the frequency of adolescent conversions for males and females taken together.

The character of F might be changed with a greater number of cases. Many returns were made by persons 18 or 19 years of age. The chances are thus slightly decreased that conversions would fall between 17 and 27 years, which doubtless places the height of the curve too early. The fact that more returns were from the female sex, which naturally develops earlier, would also tend to make the general average of 14.4 too early. Many more returns are needed to make generalizations entirely reliable.

#### THE MOTIVES AND FORCES LEADING TO CONVERSIONS.

A study of the motives and forces which occasion religious awakening is not of much importance, perhaps, as furnishing insight into the nature of the developed product, but it is of value from both the scientific and pedagogical standpoints. When brought together, the motives and forces seemed to fall pretty naturally into eight groups: fears, other self-regarding motives, altruistic motives, following out a moral ideal, remorse and conviction for sin, response to teaching, example and imitation, and urging and other forms of social pressure. The illustrations given below are a few of the representative (not the striking) instances:

1. Fears: F., 12. "Terrors of hell dwelt on at revival until I became so scared I cried." F., 14. "Had I died, had no hope, only eternal loss." M., 15. "Fear of God's punishment." M., 22. "Fear of death and waking up in —." In many instances fears were declared to be entirely absent. M., 18. "Two ministers told me I'd go to hell if I didn't make a stand; I said I'd never be a Christian to dodge hell."

2. Other self-regarding motives: F., 17. "Wanted the approval

of others." *F.*, 11. "Father had died, and I thought I would get to meet him." *M.*, 7. "Ambition of a refined sort." *M.*, 18. "The man who is best is strongest and happiest."

3. Altruistic motives: *F.*, 19. "Wish to please minister counteracted my negative attitude." *M.*, 18. "Wanted to exert right influence over pupils at school." *F.*, 16. "Felt I must be better and do more good in the world." *F.*, —. "It was love for God who had done so much for me."

4. Following out a moral ideal: *M.*, 14. "Feeling of duty." *M.*, 16. "Wanted to be good and control anger and passions." *F.*, 17. "An inner conviction that it was a good thing to do." *M.*, 15. "Had a yearning for higher ideal of life." *F.*, 13. "Spontaneous awakening to a divine impulse." Groups 3 and 4 run into each other. The sense of duty which was not referred objectively is included in the latter.

5. Remorse and conviction for sin: *F.*, 17. "Remorse for past conduct was chief motive." *M.*, 18. "Was thoroughly convicted of sin." *F.*, 14. "My sins were very plain to me; thought myself the greatest sinner in the world." *F.*, 18. "The downfall and death of a friend I had trusted set me to thinking; I wondered if I were not worse than she."

6. Response to teaching: *F.*, 11. "Mother talked to me and made the way of salvation plain." *F.*, —. "A sermon that seemed just meant for me set me to thinking." *M.*, 23. "The teaching of Christ appealed strongly to my reason and judgment." Evangelical sermons described as emotional are included in the last group below.

7. Example and imitation: *M.*, 15. "It began largely as imitation." *F.*, 16. "I saw so many becoming good that I just had to become a Christian." *F.*, 13. "For the first time I came in contact with a Christian family; their influence induced me to become a Christian." *M.*, 16. "I thought only the power of religion could make me live such a life as brother's." This group ranges from mere imitation to sympathy with a great personality, where it closely approaches group 4.

8. Urging and social pressure: *M.*, 15. "The girls coaxed me at school; estimable ladies and deacons gathered round me and urged me to flee from the wrath to come." *F.*, 13. "I took the course pointed out at the time." *F.*, 14. "A pleading word from my teacher helped me." Imitation and social pressure are frequently so intense that the individuality of the subject is entirely lost. *M.*, —. "It seems to me now hypnotic." *F.*, 16. "The sermon moved me; they sang; before I realized what had happened I was kneeling at the altar rail; I never knew what was said to me." In such cases there is one of two results: the forced position is accepted as the right one, or the person rebels when partial independence is gained. The former are included in this study. The cases in which the person appeared entirely to lose his or her individuality, and immediately to react against a forced conformity, are rejected. *M.*, 50. "It was the buoyancy of the atmosphere that made me go forward; I had nothing to do with it; I could have done the same thing every week without any change in my character."

Table IV shows the relative prominence of the eight classes of motives and forces illustrated above as determined by the frequency with which each was named by the subjects. The evaluation was made in three ways: (1) Taking only the motives mentioned as most prominent ones; (2) trying to form an estimate



of the value of all the motives wherever mentioned, by duplicating those apparently very prominent; (3) simply counting their frequency. The first method made the self-regarding motives about one-third more prominent than the other two ways, and subtracted from the moral ideal class. The last two methods gave nearly the same results. Table IV is the result of the third method. It is arranged to show the difference between male and female conversion, and also to compare those taking place at revivals with the others.

(1) *The relative prominence of the different motives and forces:* This is best seen from column 17. Self-regarding motives make up one-fifth of all the causes and one-third of all the subjective forces. The sum of the altruistic motives, 6%, and the response to a moral ideal, 16%, forms a group which may be called distinctively moral motives. The sum is 22%, or about the same as the total self-regarding group. Conviction for sin plays about the same part. Fears are a large factor, and when estimated according to the various ways they present themselves to each person, instead of counting them once for each, they are nearly doubled. Hope of heaven is nearly absent. Fear appears to be present about fifteen times as often as hope. Only 6% are altruistic motives. Of these only 2% mention love of God or Christ as leading them to a higher life. This is significant in view of the fact that love of God is central in Christian theology. The subjective forces are one and a half times more frequent than external forces. Of the objective forces social pressure is greatest. Account was taken of it only when it was actually mentioned. Had the fact of about half the conversions occurring at revivals been taken as evidence that social pressure was really exerted, this per cent. would have been much greater. The same would be true also of example and imitation, which now make up 15% of the forces. Arranging the forces into three groups, according to their frequency, we have, beginning with the highest per cent.: (a) Response to a moral ideal, conviction for sin, and social pressure; (b) fear, and imitation; (c) following out teaching, and altruistic motives. It is of interest to compare fear of hell and conviction for sin, which are prominent, with hope of heaven and love of Christ and God, which are almost absent. These four are all central in Christian theology, and might be supposed to be about equal as religious incentives. It appears that those which are racial and instinctive are very much more prominent than the others. The average age at which the conversions occur in which these forces are present, tends to show the same thing. As a rule those which are racial and instinctive come earliest. The series of the forces which occasion conversion, arranged from the earliest to the latest, are the following: imitation, social pressure, conviction for sin, fear of death and hell, response to teaching, following out a moral ideal and altruistic.

(2) *Comparison of male and female cases:* Three groups of motives appeal about equally to males and females; they are: fear of death and hell, conviction for sin and the altruistic. Two groups appeal to the males more strongly: the self-regarding and moral ideal motives; three to the females more than to the males: response to teaching, imitation and social pressure. The greatest diversity is in the response to a moral ideal, which is 7% greater for males, and social pressure, which is 6% greater in the case of females.

(3) *The revival cases compared with the others:* Fear of death and hell, self-regard, altruistic and moral motives are about the same in both. Imitation and social pressure are greater in revival cases. Response to teaching and conviction for sin are greater in those

TABLE IV.  
*Showing the frequency of certain motives and forces which occasion conversion, and the average age for each motive.*

MOTIVES AND FORCES PRESENT AT CONVERSION.	A. MALES.						B. FEMALES.						C. MALE AND FEMALE.					
	Revival.			Non-Rev.			Revival.			Non-Rev.			Revival.			Non-Rev.		
	%		AV. Age.	%		AV. Age.	%		AV. Age.	%		AV. Age.	%		AV. Age.	%		AV. Age.
	1	2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fear of death and hell, etc.	16	15.5	13	17.4	15	16.1	14	13.7	17	13.5	15	13.6	15	14.6	16	14.6	15	14.6
To gain heaven	3	14.4	3	16.5	4	16.4	4	13.1	1	13.3	1	13.2	2	13.6	1	15.1	1	14.4
Other self-regarding motives	4		5					4						4				
Total self-regarding motives	23		21		22	19		19		21		19		21		21		20
Love of God or Christ	1		3		2			3		2		2		2		2		4
Various other altruistic motives	2		5		4			4		3		4		3		4		4
Total other regarding motives	3	17.6	8	17	6	16.4	7	14.2	5	16.2	6	15.2	5	15.7	6	16.5	6	15.8
Response to a moral ideal	18	14.8	24	16.9	20	15.8	13	14	13	15.6	13	14.6	15	14.5	16	16.3	16	15.2
Total ideal & other regard'g motives	21		32		26		20	18		18		19		20		22		22
Remorse, conviction for sin, etc.	19	14.8	19	16.3	19	15.3	16	13.5	20	14.2	18	13.8	17	14.1	20	15	18	14.5
Total subjective forces	63		72		67		55	55		59		56		58		63		60
Response to teaching	5	17	8	17.2	6	17.1	7	13	10	14.9	8	14.1	6	14.6	9	15.5	7	15.1
Example, imitation, etc.	15	14.1	9	15	13	14.4	16	13.5	15	14.5	16	13.8	16	13.8	14	14.6	15	14.1
Social pressure, -urging, etc.	17	14	11	17.5	14	14.9	22	13	16	14.4	20	13.6	20	13.4	14	16.3	18	14.2
Total OBJECTIVE forces	37		28		23		45	45		41		44		42		37		40

which occur in more quiet surroundings. Although social pressure is greater in the revival cases, the sense of sin and fears are even less frequent than in the non-revival cases. This is evidence that the charge we so often make against revivals, that they stir up unduly lower religious incentives, such as fear, is not altogether just. They do not so much *awaken* these highly emotional states as appeal to those instincts already at work in the consciousness, and which would probably show themselves spontaneously a year or two later. The average ages at which the different motives arise show that the effect of revivals is to hasten the working of specific motives. The same motives culminate earlier as a decisive factor in conversion in nearly all the revival cases, sometimes by as much as two years.

There seems to be a normal age when the various motives should assert themselves. This is best seen from Figure IV, in which the various subjective influences at work at the time of conversion are

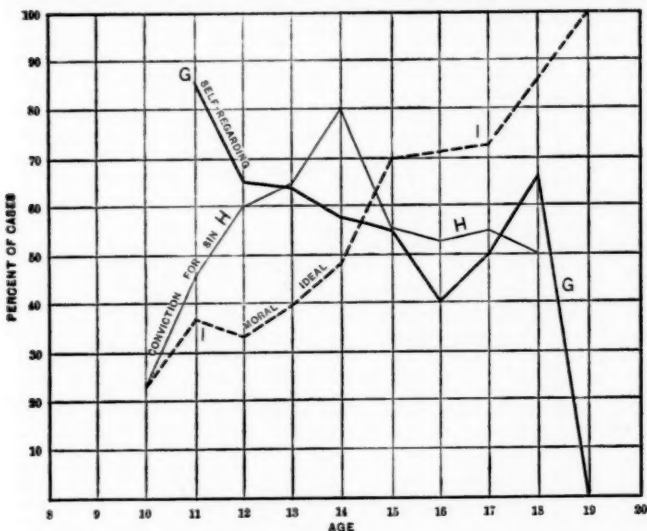


FIGURE IV. Showing the frequency of various motives for different years (females).

plotted to show their frequency for different years. Curves G, H and I are made on the basis of the ratio in hundredths between the number of times each motive was said to be present and the number of conversions for each year. Before 10 and after 19 the cases are scattering and the curves too irregular to be of value.

In earlier years the self-regarding motives, of which a large part are fears, are by far in the predominance. They gradually decrease. Curve I, for altruistic and moral ideal motives, exactly contradicts G. It represents the dawn of the moral consciousness. After 15, moral and other regarding incentives are present in almost

every case. The sense of sin, curve H, increases up to the early years of adolescence, then gradually decreases. It may be connected with the rapid nervous changes of early adolescence and the corresponding arousal of new, large, confused, organic impressions, the mental unrest and uncertainty, the undefined and unclarified ideas that come at this period when fresh life is making itself felt. The rapid increment of moral motives at the time when the sense of sin declines is worthy of notice.

The males did not make as full a record of motives as the females. They were also fewer. The curves for them were not complete enough to publish. The curve for moral motives was very similar to that for females, but it was clear that the self-regarding motives did not decrease as in the case of females.

#### EXPERIENCES PRECEDING CONVERSION.

Just before the apparent break in the continuity of the life, there is usually a mental state known in theological terms as conviction, or the sense of sin. It shows itself by various mental and bodily affections, such as the feeling of separation from God, depression, restlessness, anxiety, loss of sleep and appetite, a weight on the mind, a burden of heart, and the like. The quotations below will furnish a picture of the general mental and bodily states. The frequency of their occurrence is given in Table V. Remorse and conviction for sin, which are very prominent, are not included in these groups in cases where they were given among the motives.

Prayer: *F.*, 18. "I grew so distressed I cried to God for mercy and forgiveness." *F.*, 17. "I felt a weight of sin; prayed not to die until I became better." *F.*, 15. "I fought and struggled in prayer to get the feeling that God was with me."

Estrangement from God: *M.*, 15. "Sense of sinfulness and estrangement from God grew on me daily." *M.*, 16. "Felt that God despised me." *M.*, 16. "Felt a lack of harmony with the Divine Being and sense of continually offending Him." There is often a feeling of separation from friends; this is doubtless of the same sort, and grows out of the individual's feeling of detachment from the whole.

Restlessness and uncertainty: *M.*, 12. "Everything went wrong with me; it seemed like Sunday all the time." *M.*, 15. "Constantly worrying." *F.*, 14. "Thought something terrible was going to happen." *F.*, 23. "Felt wrong mentally and morally." *F.*, 17. "Could not keep my mind on anything." *F.*, 12. "Couldn't work." *M.*, 19. "Felt a want, an unrest, an aching void the world could never fill."

Depression and meditation: *F.*, 13. "Thought of my condition was terrible." *F.*, 16. "For nights and days my mind was troubled." *M.*, 20. "Secret meditation while at work." *F.*, 16. "Began thinking and thinking by myself."

Self-distrust and helplessness: *F.*, 23. "Was discouraged, and felt it was no use to try." *F.*, 18. "Had suffered for years, wanting to be a Christian and not knowing how." *F.*, 16. "Awful feeling of helplessness." Other less frequent affections are: desire to better life, earnestness, seriousness, doubts and questionings.

These states are not infrequently described in physical terms: "Couldn't eat." "Would lie awake at night." "Was excited." *M.*, 19. "Felt I was carrying the world on my shoulders." *M.*, 19. "Often, very often I cried myself to sleep." *M.*, 10. "Hymns would sound in my mind as if sung." *F.*, 15. "Had visions of

Christ saying to me, 'Come to Me, my child.'" M., 17. "Just before conversion I was walking along a pathway thinking of religious matters, when suddenly the word H-e-l-l was spelled out five yards ahead of me."

Tendency to resist conviction: The cases arrange themselves naturally in a series from those in which there has been a continued, earnest effort in the direction of a higher life which finally dawned, to those at the other end of the series in which there has been a more or less wayward life, the awakening of an ideal which contradicts it and a stubborn refusal to follow it. At one extreme is the striving *after* something; at the other is the struggling *against* something. All the way between these extremes are hazy conceptions, an undefinable sense of imperfection, a "wanting something and not knowing what," which give rise to the feelings of restlessness, anxiety, depression, helplessness, and the like, as shown above. Perhaps in the tendency to resist conviction one sees reflected something of the nature of conversion and the explanation of some of the phenomena following it. M., 15. (Carefully trained, fell into bad associations, and came under the influence of revival.) "I resisted as long as possible by finding fault with the church and its members, saying I didn't believe the Bible, or that there was a Hell; was afraid to go to church or to bed; saw a flood of light; so happy I sang all night and couldn't sleep." M., 15. "I strictly avoided any conversation tending in any way toward moral or religious topics; conviction became torture, yet I could not yield." M., 12. "Sort of inward tendency to resist, which did not show itself outwardly." F., 16. "I stayed away from revivals and prayer meeting for fear of giving way to my convictions." F., 17. "Tried every way to escape a friend interested in me, and the minister; in prayer meeting would hold on to the seat with main force to keep from rising for prayer." F., 16. "Often fought against crying, the conviction was so strong." F., 12. "Would tell myself, 'You ought to join church;' then I would say, 'No, you can't be good enough.'" F., 18. "Dreaded to go forward." F., 13. "Knew I would have to act differently at school and make up with my teacher, whom I had offended." F., 17. "I tried to throw off the feeling by saying all sorts of reckless things about God and religion."

The frequency with which the various kinds of affections show themselves is given in Table V. The worth of the per cents is more in their relative than in their absolute magnitude. Many of the records were not complete, else the per cents might all be greater.

It is evident that depression and dejection are almost always present. The disturbances are described more often in mental terms than physical. The sense of remorse, restlessness, sadness, anxiety and the like are much more frequent than earnestness and a clearly marked purpose to enter a new life. The impressions are confused and organic.

Comparing the males and females, it is evident that the duration of conviction for sin is more than twice as long in case of the former. Doubts are more common in males, and resistance to conviction is about twice as frequent. Helplessness and humility are more common in females.

It is an interesting fact that the mental and physical disturbances are greater in the revival cases among the males and in the non-revival cases among the females. Studying through the female cases alone, it is pretty clear that one reason the stress is greater with the females who are not influenced directly by revival serv-

TABLE V.

*Showing the frequency in per cent. of cases of different mental and bodily affections preceding conversion.*

EXPERIENCES IMMEDIATELY BEFORE CONVERSION.	FEMALE.		MALE.	
	Revival. %	Non-Rev. %	Revival. %	Non-Rev. %
Remorse, conviction for sin (recognized as a motive)	16	20	19	19
Tendency to resist conviction	33	40	80	41
Prayer, calling on God	31	40	70	70
Sense of estrangement from God	17	32	30	16
Restlessness, anxiety, uncertainty	30	60	53	16
Depression, sadness, meditation	90	80	82	70
Helplessness, humility	15	6	—	8
Desire to be a Christian	13	11	12	8
Earnestness, seriousness	9	9	—	—
Doubts, questionings	—	6	6	30
Loss of sleep	17	35	60	40
Loss of appetite	17	20	35	16
Nervousness	6	6	12	—
Weeping	6	9	6	—
Ill health	6	—	—	—
Affection of sight	—	9	12	—
Affection of hearing	6	—	6	8
Affection of touch	12	12	24	—
Average duration of sense of sin	15 wks.	36 wks.	74 wks.	63 wks.

ices is that they lack the stimulus of the crowd to carry them through difficulties that are at work in their lives when they are left to work them out alone. Modesty and reserve keep them from making their struggles known. *F.*, 11. "I began to think deeply on religious subjects. I longed for some one to talk to about them." *F.*, 16. "I began thinking and thinking by myself." *F.*, 13. "I used to lie awake and cry over my sins." The strength of sermons, the rhythm of music, the encouragement of friends, the force of example and all the impetus that comes from a religious service, often furnish the last stimulus needed to carry the restless, struggling life through its uncertainty and perplexity. *F.*, 14. "The sermon seemed just meant for me." *F.*, 23. "Was wretched and discontented. Thought it no use to try. The music appealed to me. While they were singing, was much moved and rose to my feet." Similar instances are numerous. It will be noticed from the table that in many groups of affections, they are about twice as numerous in case of non-revivals and that in these the duration of conviction is more than twice as long.

The fact that the males contradict nearly everything in the columns for females is difficult. It may be due, in part, to the larger place intellection has in males and intuition in females. These are some of the evidences. Table IV shows that the subjective forces leading to conversion are greater in males, while imitation and social pressure are greater in females. In Table V those disturbances, such as anxiety, sadness and helplessness, showing the

working of large undefined forces in the life, are more frequent in females. Doubts and questionings are 36% for males as against 6% for females. Resistance to conviction is twice as frequent in males, which is evidence of the action of contradictory ideas, or of convictions which oppose habits. The duration of conviction is much greater in males. In beginning a new life, therefore, the male, being more self-dependent and working his way more by his own insight, may find it a more bitter ordeal to conform his will to a social or moral order outside his own, and rebels. The female accepts the help of the external institutional system in working out her own life problems.

For the purpose of seeing farther into the nature of the sense of sin (using the term broadly to include depression, helplessness, and the like), the male and female cases were grouped to find how far it is the result of bad moral training and actual waywardness. Only such were used as showed in a rather pronounced way the presence or absence of immorality and of the sense of sin. Among the males, when conviction for sin or what is described in kindred terms is present, it follows actual waywardness in two-thirds of the cases. When the previous life has been fairly upright, the sense of sin is present and absent in about the same number of cases. When conversion has been preceded by waywardness, the sense of sin is absent only in one-tenth of the cases.

Among the females it is different. When there have actually been marked evil tendencies before conversion, the conviction phenomena are nearly always present, and in that the females coincide with the males. But out of the whole number of females there are more instances given in which they follow a fairly moral life than those in which they follow a distinctly wayward one. Of the cases described as of good training and of moral and even religious observance, more than two-thirds show in a marked way the sense of sin.

These facts seem to show that although the sense of sin comes naturally as the sequence of bad habits and conscious evil, it is not occasioned wholly by them, and perhaps has other causes. Its greater prominence among females of good moral training may be traceable, in part, directly to imperfect physical conditions. Hysteria and other nervous and other circulatory disorders are more common among adolescent females than males, and far more common during adolescence than later.<sup>1</sup> Many of the symptoms of these diseases are the same as those shown before conversion. There are evidences, too, that the extreme dejection, self-distrust, self-condemnation, and the like, are traceable, in part, to physiological causes in males. About one-third of the males gave sexual temptations as among those of youth, and nearly always it was said to be the chief temptation. In nearly all these instances the phenomena during conviction are remarkably similar to those which follow the sexual evil. These are typical: *M.*, 12. "Everything seemed dead." *M.*, 19. "Before conversion I had not a single happy day because of dread of the future." *M.*, 15. "Had fear of being lost; was pensive and worried; was greatly depressed and could not sleep." *M.*, 18. "Was troubled with fears. Thoroughly convicted of sin; was filled with remorse, and was ashamed of my condition. Had uneasiness, and for days longed for God's forgiveness." In 90% of these cases did remorse, fear of death, depression and the like enter prominently among the conviction states. A few gave escape from passion among the motives for conversion.

<sup>1</sup> W. R. Gower, "Diseases of the Nervous System." Vol. II. p. 985.



## THE CHANGE ITSELF; CONVERSION. ✓

(a) *Mental and bodily accompaniments.* The cases would easily arrange themselves into a series from those where there is almost no feeling accompaniment, to those at the other extreme in which there is intense struggle, the height of pain and joy, and vivid experiences quite out of the range of ordinary life. A few definite changes seem to work themselves out quietly somehow in the depths of the nature and are given ready made without emotion. *M.*, 15. "My conversion was attended by nothing unusual." *M.*, 18. "No emotion; it was a calm acceptance of the power of Christ to save." *M.*, 12. "It was simply a jump for the better." They shade off rapidly, however, into those which are wrought out with high emotion. When the feelings attending conversion were collated and compared with those during the conviction period, they were found, in general, to be much more intense. They are described oftener in physical terms than are those during the period preceding. There is evidence that the whole nature is in a high state of tension, and that the senses are much more acute. The attention is narrowed and fixed. The exact appearance of objects, the presentation of unusual sights, the exact words spoken and heard, the hymns sung, imaginary sounds, and the like, are frequently recalled with great minuteness. The experiences are more intense in the revival cases than in the others among both males and females. In the case of males this is in line with the greater intensity of the conviction phenomena in revival conversions. In the case of females it seems at first to contradict the facts given in the preceding section, viz., that the disturbances preceding conversion were greater in the non-revival cases. Here there are almost no vivid experiences among the non-revival female conversions. The explanation here may be in line with the one given in the preceding section. Females are more impressionable, and controlled more by large instinctive feelings. Left alone there is less power of positive activity in the presence of spiritual difficulties. A slight external stimulus is helpful. In the presence of the stronger forces of a revival, she is thrown often into the intensest emotion. *F.*, 16. "As the choir began to sing, I felt a queer feeling about my heart which might be called a nervous tremor. There was a choking sensation in my throat, and every muscle in my body seemed to have received an electric shock. While in this state, hardly knowing what I did, I went forward. On second night was converted and felt as if God was pleased with me." *F.*, 12. "On the impulse of the moment I went to the altar. After an hour of pleading and prayer, I felt something go from me which seemed like a burden lifted, and something seemed floating nearer and nearer just above me. Suddenly I felt a touch as of the Divine One, and a voice said, 'Thy sins are forgiven thee; arise, go in peace.' " There are several cases quite as vivid in all except the non-revival female group.

There are almost invariably two opposite kinds of feeling shown at the time of conversion. The first are those of the conviction period, magnified until the subject is brought to the last degree of dejection, humility, confusion, uncertainty, sense of sinfulness, and the like. The second seems to be the relief from the first and is characterized by such feelings as joy, elevation, free activity, clarified vision and oneness with God. It appears to be the intensest form of those feelings which shade off into the post-conversion experiences. These two kinds of feeling are often completely mingled and blended. *M.*, 75. "Was despondent; went out of doors and cried; felt my heart lifting and couldn't sit still." *F.*, 12. "Felt

sad over my sins, yet an inexpressible feeling of gladness came over me." *F.*, 19. "I read books and reflected; saw my lack; knelt and prayed, putting happiness into every breath, and beauty into everything." *F.*, 16. "With tears came relief and joy."

That the feelings within this point of great mental tension, and activity are so blended, and that so much is worked out in so short a time, makes adequate self-analysis impossible and increases the difficulty and interest of the study.

The two opposite kinds of feeling are more often successive, and their point of separation is pretty clearly marked. In throwing the cases together, each of these divisions fell into two more or less distinct classes. First, those connected with the feeling of sinfulness proper, which are negative and result in dejection and self-abnegation; and secondly, those which involve a struggle after larger life, and are largely positive, but often accompanied by uncertainty and distress. The general character of the separate groups is illustrated below.

1. *M.*, 19. "I mourned and wept and prayed, and stood trembling, with tears in my eyes." *M.*, 15. "Prayed earnestly for pardon; willing to do anything for Christ." *M.*, 16. "Felt the weight of sin as a burden on my mind." *M.*, 37. "Didn't care whether I lived or died." *F.*, 14. "Past life was source of great regret to me. Conviction came so strong at 14 that I thought I would die that very summer if I did not get relief; often worried and lost sleep; one evening after retiring a queer sensation came over me; it was very dark, as though passing through something and God was right over my head; I trembled intensely and became exhausted and helpless."

2. *M.*, 16. "Inexpressible joy sprang up in my soul." *M.*, 12. "Saw a flood of light, and faces in room seemed to reflect the bright light." *M.*, 15. "While praying I seemed caught up into the presence of Jesus." *M.*, 19. "Perceived a load go off." *F.*, 12. "I had a sudden transport of joy; wished I might die right then and go to God." *M.*, 17. "The emotion suddenly broke and I was convinced of the atonement of my sins."

3. *F.*, 15. "I prayed day after day, struggling for light." *F.*, 10. "The chief trouble was I did not feel myself as great a sinner as I ought." *F.*, 16. "Felt the need of a religion; read book and thought over it; was beginning to despair." *M.*, 23. "Prayed and cried to God for help; wandered four years seeking rest; went to many a priest for comfort."

4. *F.*, 15. "While struggling in prayer peace came to me through the darkness." *F.*, 10. "Came to have a feeling like I do now when a thing is right." *F.*, —. "New light seemed to dawn in me." *M.*, 23. "When all outward help failed a voice came which said: 'There is one, even Christ Jesus, can speak to thy condition'; and when I heard it my heart did leap for joy." *F.*, 13. "I could fairly see the gospel truths, which had always been misty."

Groups 2 and 4 are very similar; 1 and 3 show somewhat distinct mental states and processes. They may be characterized respectively as the *sense of sin* and the *feeling of incompleteness*. The sense of sin is attended by feelings of wretchedness, heaviness, helplessness, weariness, sensitiveness and resistance, separation from friends and God, fear, resentment, and so on, which are followed after the crisis by joy, peace, rest, lightness of heart, oneness with others and God, love, exuberance of spirits, sense of free activity, and the like. The feelings are reduced to the last degree of tension, and then recoil; are pent up, and suddenly burst; the life appears to force itself to the farthest extreme in a given direction and then to break into

free activity in another. The feeling of imperfection or incompleteness has slightly different accompaniments. There is uncertainty, unrest, mistiness, dazed feeling, distress, effort, struggle toward an indefinite something, longing for something out of reach, etc., which is followed by peace, happiness, a sense of harmony, a clearing away, a flash of light, freedom, entrance into new life, and so on. Something like what the cases show is represented graphically in Figure V.

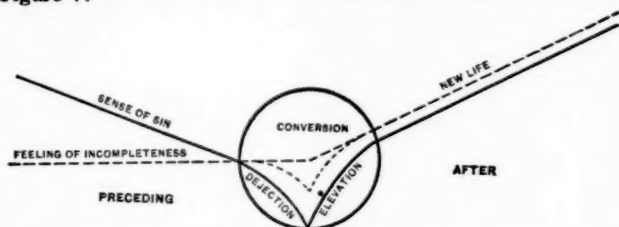


FIGURE V. Illustrating roughly the mental processes at conversion as shown by the feeling accompaniments.

The meaning of these phenomena can be discussed better later. Those attending the sense of sin are more characteristic of each of the cases above 27 years of age and of the younger subjects in which there has been definite waywardness. The feeling of imperfection and its accompaniments seems to be a normal adolescent experience. It is often attended, also, by mental depression, but not so frequently as is the sense of sin.

(b) *In what conversion consists.*

Just what happens at conversion is hinted by the surface phenomena which can be put into words by the subjects. Nearly all the persons answered questions IV of the syllabus completely enough to give some glimpse of the mental state at the time of conversion, and a few had a distinct feeling of something taking place in their natures. Two persons illustrated graphically what happened by drawing lines. In both, conversion was pictured by a rapidly ascending curve. When the states and processes thought to be central were collected, they formed seven classes, of which instances are given below. In order to see what peculiar conviction state the separate groups are most apt to follow, a record was kept of the frequency with which each followed one or all of these five conviction phenomena, — remorse (conviction, dejection, etc.), estrangement from God (and friends), resistance (to conviction), prayer (calling on God, etc.), and positive effort (in the direction of new insight).

1. Yielding, self-surrender, breaking pride, etc.: M., 15. "I finally gave up trying to resist." M., 18. "Wanted to be a lawyer; was not willing to do the work God called me to do; after much prayer I surrendered completely and had the assurance I was accepted." F., 13. "I knew it would be best for me, but there were some things I could not give up; when relief came all pride was gone." F., 17. "Had said I would not give up; when my will was broken it was all over." Self-surrender generally follows remorse, resistance and prayer, but seldom follows estrangement and positive effort.

2. Determination, making up mind, etc.: M., 19. "Determined

to yield my heart and life to God's service." *F.*, 13. "One day made up my mind I would be for Christ always." *F.*, 18. "Made up my mind to be a Christian regardless of feeling." *M.*, 18. "It was deciding for the sake of doing right and for influencing others." Cases in this group rarely follow any of the above mentioned conviction states except positive effort and tendency to resist. The cases are interesting, in which there is a sense of expenditure of effort in the act of yielding.

3. Forgiveness: *F.*, 13. "Felt the wrath of God resting on me; called on Him for aid; felt my sins forgiven." *F.*, 16. "Felt God's forgiveness so distinctly." *M.*, 15. "Seemed to hear Jesus speak words of forgiveness (a purely mental experience)." *M.*, 15. "Gradually the sense came over me that I had done my part and God was willing to do His, and that He was not angry with me; I had sense of sins forgiven." Forgiveness generally follows remorse, less often estrangement, resistance and prayer, and seldom follows positive effort.

4. God's help, or presence of some outside power (generally not involving forgiveness): *M.*, 19. "By God's special grace and help I sought peace publicly and found it." *M.*, 27. "I saw the words, 'Without blood there is no remission,' and the Holy Spirit sealed them to my heart." *M.*, 15. "Felt sure I had received the Holy Spirit." Usually follows remorse; less frequently after the other symptoms.

5. Public confession: *M.*, 15. "Did feel that in taking this public step I had crossed the Rubicon." *M.*, 13. "Held up my hand in prayer meeting as a profession of faith in Christ." *F.*, —. "I rose for prayer and felt relieved." *F.*, 12. "At the call for those who wished prayer, I was immediately on my feet, and it seemed as if a great burden had been removed." Public confession seems often closely akin to forgiveness and the sense of harmony with God, the sanction of the church and approval of friends standing for the more abstract relation. It is also closely related to breaking pride and self-surrender. The conviction symptoms preceding it, except estrangement and prayer, are all present in about half the instances.

6. Sudden awakening: *M.*, 22. "Got to attending revivals and thought much over my condition and how to know I was saved; everything depended on 'Him that cometh unto me,' etc.; cometh was the pivotal word; one evening while walking along the road it came to me that it was all right now." *M.*, 11. "After failing of relief at revival, was singing songs by myself at home; after I got through singing I sat and thought, 'Why, God does forgive me and if I live right He will help me.'" *M.*, 37. "Had been a drunkard for years; struggled against my better sensibilities; attended city mission; read Bible and prayed far into night; went to sleep and during night the thing had cleared itself up in my mind, and I was ready to live or die by it." *F.*, 13. "For four years I had wanted to be a Christian but could not feel my sins forgiven; one morning sitting in my room reading, peace just seemed to come, and I was happy indeed." *F.*, 16. "The awful shock of mother's death seemed to awaken me from the state I was in and make me determined to do better." Such cases generally have some probable direct antecedent in thought or action which temporarily fades away and is revived as a finished result. They are preceded frequently by all the conviction symptoms, with remorse, prayer and positive effort in the predominance.

7. The sense of harmony (oneness with God, etc.): *F.*, 13. "Felt that God had sent peace to me." *F.*, 17. "Felt God had accepted

me." *F.*, 11. "Felt presence of God and found relief." *M.*, 17. "It was a sudden awakening, so I could say in my heart, 'Our Father in heaven.'" *M.*, 14. "I knelt and prayed; I seemed immersed for the moment in a larger being, as though it had closed about me; I felt sure I had received the Holy Spirit." The idea of oneness is also involved in forgiveness. The sense of harmony frequently follows remorse and prayer; less often estrangement, resistance and positive effort. There is evidence that mere imitation is a strong factor in conversion, and there is nothing new to be said of it here. The elements considered here only include those cases in which the subjective forces were strongly marked.

The relative frequency of the various elements thought to be central in the change are given in Table VI. The same person often mentioned facts which came under two or more of the seven headings. The per cents were distributed so that the sum of the columns gives a hundred per cent. The figures do not show, therefore, the per cent. of cases in which each element enters, but their relative prominence.

TABLE VI.

*Showing the relative frequency of certain things regarded as central in conversion.*

THAT IN WHICH CONVERSION CONSISTS.	MALES.		FEMALES.		TOTAL.	
	Revi'l. %	Non-R. %	Revi'l. %	Non-R. %	Male. %	Fem'e. %
Self-surrender	15	—	12	11	10	12
Determination	3	11	4	15	6	8
Forgiveness	28	11	19	8	22	14
Divine aid	5	18	6	6	10	6
Public confession	17	7	19	15	14	18
Sudden awakening (Spontaneous ?)	17	32	27	28	21	27
Feeling of oneness (With God, friends, etc.)	15	21	13	18	16	15

The table shows that the order of prominence as shown by the frequency of the different factors is: spontaneous awakening, sense of forgiveness, finding oneness with God, public confession, self-surrender, an act performed by divine aid, and lastly the exercise of will by the subject.

Comparing the males and females, it is seen that, self-surrender, determination, sudden awakening and public confession are more frequent among females. This harmonizes with the previous comparisons. Their feeling and volitional powers seem to be more highly developed. Sensitiveness to surroundings also helps account for the prominence of public confession and self-surrender. Each of these often means the breaking of pride and falling in line

with the ensemble. Forgiveness and the recognition of external, supernatural aid is more common among males.

The revival cases show some marked contrasts with the others. Self-surrender, forgiveness and public confession are more common in the former, while the force of will, spontaneous awakening and the sense of harmony are more essential factors in the non-revival cases. Yielding is entirely absent in non-revival males. That it is so frequent among non-revival females is explainable by the fact that so many of them occur in regular church services. The same thing explains the variance of the numbers for public confession. In general those factors more prominent in revival cases are such as naturally follow external pressure, while the others are such as require the natural awakening and exercise of subjective forces.

These are the facts as given by the subjects. An attempt at the interpretation of the life forces at work which produce them will come later.

(c) *The conscious element involved in conversion.* The term conscious is used diversely. Its use here is very general. It stands for the undifferentiated centre at which intellection and volition separate. It represents an element of purpose, insight and choice as distinguished from mere response to environment, reaction to physiological stimuli and blind determination. This is the most uncertain division of the subject. It requires evaluation at every point, and so the chance for error is heightened.

An interesting feature of the foregoing facts is the apparent smallness of the intellectual factor among the conscious motives to conversion, and also of the volitional element at the time of the change. For example, during the conviction period, conscious following out of teaching was mentioned in only 7% of the cases, and a response to moral ideal in only 20% of them; while external forces were recognized in 40% of them. We have first seen that the conscious exercise of will was rarely mentioned as being central at the time of conversion. That an apparently spontaneous awakening is the most prominent factor in the change, increased the evidence that the process is automatic. Public confession may mean that the subject is driven by surroundings. The sense of forgiveness and oneness with God also generally indicate that the experience is worked out in the sphere of feeling. There are, however, many evidences of the presence of conscious purpose. It is often mentioned as a recognized factor. Besides, the cases show that public confession is often made in spite of adverse surroundings. Self-surrender generally means that the subject is drawn between two possible courses, and must decide between them. The persistent struggle often shown during conviction, sometimes toward a definite end and sometimes toward a dimly defined one, indicates the presence perhaps of incipient ideation and volition.

In order to arrive at an estimate of the conscious concomitant, the cases were studied through with that alone in view. They were separated into five classes, as determined by the prominence of the conscious element: First, where it is absent, or nearly so; these are largely cases of imitation, adolescent ferment, and the like; second, those in which it is small; third, those in which the conscious and automatic forces are about equally balanced; fourth, in which there was apparently a predominance of insight, and moving along a clearly marked course; and lastly, those in which the conscious element seems without much doubt to be the determining factor. The following instances of each class will give an idea of the standard of evaluation:



1. *M.*, 15. "Began largely as imitation; a friend told me I was not free from liability to divine displeasure." *F.*, 8. "At camp meeting I went to the altar with twenty others; in the uncertainty at the altar I repeated after the leader, 'I believe Him; I knew I was converted; afterward had great comfort in Bible reading and prayer, and in times of anxiety.'"

2. *F.*, 11. "From my earliest days I had wanted to be a Christian; I felt desire, unrest and fear; many were going forward at the revival; that made it easy for me; I made confession by speaking in meeting, and felt the peace of God." *M.*, 14. "I was influenced by example of father and mother; besides this I had a sense of duty; was afraid of being lost; felt I was not good enough to become a Christian; I broke my pride and made public confession."

3. *F.*, 16. "Deeply convicted of sin; for three weeks I spent much time in prayer; had awful feeling of helplessness; relief came during a revival; I made up my mind the Sunday before that I would rise for prayer; I think it came through my own thought and deliberate choice." *F.*, 14. "Thought a great deal about the after life, and knew I must decide; I had a sort of depressed feeling, and I engaged in prayer; three days after making up my mind relief came by feeling God's forgiveness."

4. *F.*, 14. "Had unsatisfied feeling and craving for a higher life; fought and struggled in prayer to get feeling that God was with me; with the greatest effort I endeavored to get some glimpses of light; while struggling for light peace came to me through the darkness, and I felt at rest." *M.*, 18. "Wanted to make the most possible out of life and to exert the right influence over my pupils and young people; it was also a divine instinct, gratitude for blessings received, that led me to make a personal choice; I decided the matter at home that I would not only be partly right, but wholly right."

5. *F.*, 18. "The change was purely in making up my mind I would live as Christ would have me, whether certain feelings came or not; felt happy and satisfied." *M.*, 12. "Seemed only deliberate choice gradually growing and reaching its climax at conversion; duty I owed to Christ, who had done so much for me, was the chief factor; my conversion was just a jump for the better in the direction of the gradual growth which had preceded."

According to the above standard of classification the cases resulted as shown in Table VII.

It is seen from the table that there are a few cases only in which the conscious element is either absent or apparently the principal determining factor in the change. Most of them fall in between these extremes where the conscious and unconscious forces act together and interact on each other. They arrange themselves in a series from the almost wholly externally determined conversions to those which come with clear insight and controlled largely by subjective forces. Age has much to do with the place in the series into which any case will fall. It will be noticed that in both males and females the average age increases gradually with the increase of the conscious concomitant. The males form a pretty regular series, there being about the same number in which the conscious element is present and absent, and great and small. The females fall more on to the side of the automatic. 19% of the females belong to the first class, as opposed to 2% of the males, and as against 3% at the other end of their own series. This harmonizes with the facts under the discussion of the motives and the conviction period. The



consciously self-directing forces are less in females. It is somewhat opposed to the facts in the present section in regard to the volition element in conversion. Determination was more frequent in females. That is not incongruous, since the organic push in females which results in determination is mainly volition, and is more akin to feeling than is intellection proper. The revival cases

TABLE VII.

*Showing the result of an attempt to estimate the degree of the conscious element present in conversions.*

CONSCIOUS ELEMENT.	MALE.		FEMALE.	
	% of whole Number.	Average Age.	% of whole Number.	Average Age.
Conscious element				
Absent	2	11	19	11.8
Less than unconscious	34	13.6	42	13.2
Equal to unconscious	36	16.2	19	14.6
Greater than unconscious	26	17.4	17	15.4
Entirely dominant (or nearly so)	2	18	3	17

form a different series from the others when taken separately. They throw the greater number into the first two classes, while the non-revival throw more into the last two. It is not the influence of the revivals, simply, that throws the greater number of females into the first two classes. In part it is due to the fact that adolescent ferment is more common and earlier among females. In general it appears that among males the conscious and automatic forces are pretty evenly balanced, and that in females the automatic are in predominance.

The importance of the conscious element is not simply in its presence immediately at conversion. Without exception, the cases studied, no matter how suddenly the new life bursts forth, have antecedents in thought or action that appear to lead up directly to the phenomenon of conversion. The picture seems to be a flow of unconscious life rising now and then into conscious will, which, in turn, sets going new forces which readjust the sum of the old thoughts and feelings and actions. Whether the flow of physiological processes first gives rise to the thought product, or whether the incipient conversion holds a causal relation to the flash of new life and activity, cannot be determined. So much is clear, that before and during conversion, the two things go together and interact upon each other. The whole conviction period seems to be a disturbance in the automatic, habitual processes caused by the presence of an awakening but still dim and confused idea. The life is continually prodded by forces from without. Reverses in life, deaths, the example of a beautiful personality, ideas from other

people, the demands of established institutions, and the like, are frequently mentioned as among the things which shake the life from its self-content, and lead it into a recognition of a larger world than its own. The way in which a thought or an experience leaves its impress and works itself out in the sphere of the semi-conscious is best shown by some typical cases. *F.*, ? "A year before my conversion I had been to the altar, but felt no better; I wasn't ready to become a Christian; the following year, during revivals I felt more in earnest than ever before; went to the altar two nights in succession; I went in spite of my friends; a friend came and spoke to me, and it came over me like a flash of lightning that I was saved; I remember distinctly what different persons said to me afterward." Here is shown an effort by an unripe nature, a year of perseverance, and at last under favorable surroundings the thing sought for came like a flash. The high mental tension at the time of conversion is shown by permanence of the impressions made on the senses. One young woman writes: "The change came in the ordinary course; no one else had anything to do with it; I know no cause." But in describing the preconversion experiences she says: "The fears of being lost set me to thinking; I regretted my moral negligence; for six months nothing gave me any rest, and I engaged much in prayer." *M.*, 15. "Felt self-condemnation at having done wrong; at the end of ten days went into the bed-room and prayed; 'Jesus take me,' is all I said; as I rose and walked across the room it came to me that I was sincere and my prayer was real, and I believed my acceptance with God." Sometimes the experience which precedes the change is weeks and even months of intensest thought, struggle and prayer. Often the thought or act which sticks in the life and seems to prepare it for the awakening is very small. This may depend on the ripeness of the life for the new experience. *M.*, 19. "Knowledge of sin had ripened into the sense of sin; at church one sentence in the sermon caught my attention, though I was usually inattentive; the impression faded away immediately; two days later while in business, there was a sudden arrest of my thought without a consciously associated natural cause. My whole inner nature seemed summoned to a decision for or against God; and in five minutes was followed by a distinctively formed purpose to seek Him; it was followed immediately by a change, the principal manifestation of which was a willingness to make known my decision and hope of divine forgiveness." These antecedents to the change are numerous and various. They are determination to yield, longing, effort, performing some act, serious thought, and the like. That they should help work out a transformation of character seems to follow the physiological law stated by Dr. Carpenter, that the nervous system grows to the modes in which it has been exercised. When there is a longing or striving in a given direction, that very act predisposes the nervous system still farther to grow in the same direction. A certain teacher of music says to his pupils: "Just keep on trying and some day all of a sudden you will be surprised to find yourself playing." Other analogies will be given in the next division. Another principle which seems to be clearly involved in the sudden changes of this type is one of assimilation. When the mind is once disturbed, it cannot rest until harmony is restored. The necessity for mental and spiritual harmony when once a new and foreign element is introduced, is clearly the occasion of much of the disturbance during conviction. Conversion seems to be a feeling of ease, harmony and free activity after the last step of assimilation and readjustment has been made. There are many analogies to this in both physio-

logical and mental processes. In using the Ebbinghaus series in the study of memory, Dr. Theodate Smith finds that in using successive series, the forgotten members of a previously used series are more apt to come up in a later series than those which were remembered in the earlier series. The mind seems to have a way of working ahead at its difficulties unconsciously and even during sleep. In fact much of that which appears unaccountable in sudden religious awakenings is much in harmony with what is sometimes called "unconscious cerebration."

(d) *The unconscious or automatic element in conversion.* The conscious factor nearly always operates in connection with a large amount of the spontaneous. In many cases relief from the sense of sin persistently refuses to come until the person ceases to resist, or to make an effort in the direction he desires to go, and throws himself back on—what? Some instances of self-surrender have been given. A few others will help show the process. *F.*, 19. "I had two years of doubts and questionings. It was my disposition to look at everything intellectually; I found I must give myself up into Christ's hands; I stopped thinking about puzzling questions; I had faith in Him and found peace." *F.*, 13. "After seven days of anxious thought and meditation, I gave my heart to God, and He sent peace; the feeling came,—how, cannot tell." *M.*, 15. "After I had done everything in my power, it seemed that the change took place; I saw I had depended too much on my own power." *M.*, 45. "All at once it occurred to me that I might be saved, too, if I would stop trying to do it all myself and follow Jesus; I determined right then to test His power and love; while at the altar I determined I would live a Christian life the remainder of my days, whether I felt forgiven or not; somehow I lost my load." *M.*, 15. "I finally ceased to resist and gave myself up, though it was a hard struggle; gradually the feeling came over me that I had done my part and God was willing to do His." The physiological terminology for this so common occurrence, of processes working themselves out unconsciously is, "nervous functioning." The psychologist calls them automatisms. The philosophical designation of it is often "the universal working itself out through the individual." The theologian usually attributes the process to some personal agency outside the self—God, Holy Spirit, etc., and calls the act of yielding "self-surrender," the confidence that the new life will spring forth, "faith," and the assurance that the change has taken place, "salvation," "regeneration," etc. The likenesses to this so important element are numerous. A certain music teacher says to her pupils after the thing to be done is clearly pointed out and has been attempted unsuccessfully, "Stop trying and it will do itself." Holmes disavowed having written his best poems. They were written for him. Other analogies will be given later.

In the cases studied in which the various steps could be distinguished, the order seems to be: conviction, seeking, self-surrender, faith and assurance. The steps are often so completely mingled that no distinction can be made between them.

#### POST-CONVERSION PHENOMENA.

(a) *Feelings immediately following conversion.* The feelings which come directly after conversion are generally the opposite to those which come before. The most frequent are joy, happiness, peace, sense of relief, etc. Not infrequently do the feelings express themselves in physical terms, such as weeping, bodily lightness, improved health, and the like. The general nature of the feelings is

shown by the following: *F.*, 18. "Happiness intense; wanted to sing, but all the house was quiet." *M.*, 12. "Was very happy; sang all night and couldn't sleep." *M.*, 15. "Joy almost to weeping." *F.*, 16. "Wept and laughed alternately; was as light as if walking on air; felt as though I had gained greater peace and happiness than I had ever expected to experience." *F.*, 17. "A sudden peace and rest seemed to come over me; I felt completely, perfectly and quietly happy." *M.*, 15. "I felt my face must have shone like that of Moses; had a general feeling of buoyancy; greatest joy it was ever my lot to experience; felt as if I had been in the very presence of Deity." *M.*, 19. "I felt relieved and filled with fresh courage." *F.*, 14. "I felt as if a load were lifted from my body, and I was very happy."

A few of the cases vary somewhat from the above. Among the feelings mentioned, are zeal, earnestness, seriousness, hopefulness, subdued feeling, continued struggle, and anxiety about future conduct.

A record was made of the conviction phenomena and the experiences at conversion which had preceded the various kinds of feeling after conversion. Among the significant things in the tabulation are: Joy, happiness and peace are most apt to follow remorse, sudden awakening, public confession and sense of forgiveness. In their intenser forms they seldom follow imitation, determination, self-surrender and sense of oneness with God. Where there is positive effort preceding conversion, these feelings afterward are most frequently of the milder degree of intensity. The sense of relief follows remorse, resistance, prayer, sudden awakening, public confession and sense of forgiveness. It more frequently follows resistance than does any other feeling. It generally comes after those states which denote mental tension. The bodily affections also most often follow the more intense previous experiences.

(b) *The character of the new life.* The things most frequently mentioned as characteristic of the new life are: conformity with the conventional forms of religious observance, such as prayer, Bible reading, attendance at church, etc.; and various indications of the deepening of religious life: meditation, private prayer, positive religious effort, performance of duty, and acting from more ideal motives. In the tabulation the cases were kept separate, in which conformity to established usages involved personal insight and spontaneity. The non-revival cases fell mostly into this class; the revival cases for the most part seemed to conform uncritically to the conventional standard.

An important feature of conversion is that it brings the individual into closer relation with the objective world: persons, nature and God. The nature of this changed attitude is suggested in the following: (1) Relation to persons: *F.*, 13. "Began to work for others; immediately was anxious that all should experience the same." *F.*, 17. "Had more tender feeling toward family and friends." *F.*, 16. "Spoke at once to a person with whom I had been angry; felt for every one and loved friends better." *M.*, 19. "Felt everybody to be my friend." (2) Relation to nature: *M.*, 16. "Stars never have appeared so bright as that night going home." *M.*, 13. "Had special feeling of reverence toward nature." *F.*, 12. "Seemed to see God's greatness in nature." (3) Relation to God and Christ: *F.*, 11. "God was not afar off; He was my Father, and Christ my elder Brother." *F.*, 14. "Fear of God was gone; I saw He was the 'greatest Friend one can have.'" *M.*, 14. "Felt very near to my God." *M.*, 15. "Felt in harmony with everybody and all creation and its Creator."

The result of tabulating the cases in which the changed relations occur is shown in Table VIII.

TABLE VIII.

*Showing the per cent. of cases in which a changed attitude toward persons, nature and God was mentioned as the result of conversion.*

	MALE. In % of cases.	FEMALE. In % of cases.
Desire to help others	25	25
Love for others	43	42
Closer relation to nature	36	32
Closer relation to God	48	47
Closer relation to Christ	5	6

It should be noticed that in this table, as in all the preceding, the figures represent the lowest possible estimate, since they show the number of cases only in which the phenomenon was sufficiently prominent to receive explicit mention. It is clear, therefore, that in a large per cent. of the cases an immediate result of conversion is to call the person out from himself into active sympathy with a world outside him.

(c) *The permanence of conversion.* When there is sufficient maturity to enter conversion understandingly, relapses from the first experience are rare. It seems to be a natural entrance into a larger life, which easily becomes one's own. Where the subjects are hastened into the change, backsliding is frequent. An adequate discussion of relapses will come more properly in another paper. The central facts in regard to it will be seen in Table IX.

TABLE IX.

*Showing the per cent. of cases in which the results of conversion were temporary or permanent.*

PERMANENCY OF CONVERSION.	MALE.				FEMALE.			
	Revival.		Non-Rev.		Revival.		Non-Rev.	
	%	Age.	%	Age.	%	Age.	%	Age.
Relapsed	48	13.7	24	17.5	41	12	14	16
Permanent results	15	17	35	18.7	14	14.3	17	15.3
Uncertain	37		41		45		69	

The relapses include all cases in which there was a definite retrogression from the first experience, whether regained or not. A few were permanent relapses. It is seen that relapses after revival experiences are twice as frequent among males and three times among females as after the non-revival experiences. In the revival cases relapses are three times as frequent as permanent results, while in non-revival cases permanent results are more frequent than relapses. The relapses are generally among the younger persons.

#### OTHER EXPERIENCES SIMILAR TO THOSE OF CONVERSION.

For the purpose of finding whether the phenomena of conversion were unique or only in line with other normal experiences of common occurrence, the questions in group C of the syllabus were added. They brought in a large mass of valuable data. Space does not admit a complete organized presentation of the facts, but a few illustrations will be appended to show certain features in the other experiences which are analogous to conversion.

(a) *Conflicting tendencies:* The following facts illustrate the possibility of slipping into inharmonious relationship with environment. It is the pull between selfish inclination and the sense of ought. It leads into the condition represented by No. (1) of Figure VI. F., 19. "My mother had positively forbidden me to visit one of my friends, and many times I willfully disobeyed her, because the attraction of my friend's society was stronger than my sense of right." F., 17. "Used to be fond of jumping rope; mother forbade me; at school I disobeyed because I thought mother need never know of it; all the other girls jump ropes without falling dead, and I wouldn't meet with any accident either." F., 9. "Refused to sing at a school entertainment because mamma would not let me wear a certain dress; I felt satisfied to think I got out of singing it, but felt an inward voice chiding me; on the whole I thought I was a very bad girl, and did not want to think of it."

(b) *Depression and joy:* The feelings of accompanying uncertainty in the presence of two or more alternatives and the final decision between them, illustrate the feelings during conviction and after the conversion crisis. F., 20. "For a year or more I had something on my mind which I felt I ought to tell mother; at last I came to feel that I could not stand it any longer, and that I must do something to relieve me of this constant feeling that I ought; felt very nervous and worried; was determined to tell her, but felt afraid my courage would fail; with my heart beating very fast I followed her to her room; felt so relieved when it was over I hurried to my room and laughed and cried at intervals; still felt nervous, and trembled somewhat for a little while afterward; after that I seemed to forget everything connected with my old wrong, and I felt that I had gained a great victory over myself." F., 18. "When 14 was undecided whether to go away from home to school or to public school at home; I used to think about it continually until I lost my appetite, and became so cross and fretful that my brothers told me that I had better go to T— away from home, as I was a little crank; I decided to go away, and after I once decided it seemed as if a great load had left me, and I was free again." F., 17. "Uncertain about choosing profession; was in a state of perplexity and restlessness; could not lie down to restful sleep; felt to a certain degree depressed; was anxious for decision, because I knew it must come; when struggle was ended, feeling of relief and rest came; almost seemed as if I had entered new world." F., 27. "Most difficult decision was choice



of profession; lasted for years; began with a vague desire, and became more and more definite and clear through successive periods of waiting and effort; first part of time had many tears; some feelings of anger and rebellion; many doubts; decision came gradually; seemed to grow; feeling of decision was that of lifted burden, and seemed to me like that of a person who has climbed a hill—notice he is breathless, but feels at liberty to sit for a moment for breath, while he looks backward and forward." *F.*, 19. "A year ago was uncertain whether to break friendship with girl; thought she exerted harmful influence, but I liked her very much; took over a week to make decision; all that time had fear and depression; could not sleep well, and lost appetite; one night as I lay in bed I felt I must decide; for a few moments there was a struggle in my mind that almost amounted to pain; then I resolved to break off friendship; after struggle felt sense of weariness as well as of peace; felt just as if I wanted to rest awhile and soon fell asleep." *F.*, 37. "Since conversion have had same feelings when trying to decide some important question; after making the decision, in trying to decide which way is best, there come the same peace and rest." It is seen that both the bodily and mental accompaniments in these instances of uncertainty and relief are the same as those preceding and after conversion.

(c) *Sudden awakenings*: These instances of sudden and apparently unaccountable awakenings of power and insight are analogous to the larger spiritual awakenings, and like them, are, so far as any adequate explanation goes, mysterious and "supernatural." *M.*, 4. "Little boy 4 years old could not talk; made queer sounds for different objects; all at once he began to talk, and said his words plainly; could soon say everything he heard." "Little girl I knew well could not sing a note or carry a tune; suddenly one day she came in singing 'Sweet Marie' in sweet, clear voice." *F.*, 2. "I was very anxious to learn to play the piano, and would spend hours at the instrument; one day I suddenly found I could play a little waltz my sister had given me; this incited me to try another piece, and I found I could play that." *F.*, 19. "Tried to learn to mount and dismount a bicycle, until it seemed to me there was no use in trying any more; all at once one night I found I could do both easily." *F.*, 19. "Studied physics under good teacher, but could not see into it; went home feeling sick, discouraged one day with a problem: why do we see ourselves upside down in a spoon? Studied over it for an hour; it seemed dark; suddenly it seemed lighter; then I saw the reason as clearly as I ever did anything; I felt so glad, and the physics problem was solved forever in my mind; I liked the study, and could understand it; I cannot explain why it was." *F.*, 27. "At 14 studied etymology and mensuration; thought I could never understand them, and felt quite discouraged; after hearing pupil recite one day power to do them came like a flash, and they became favorite studies." *F.*, 19. "Could not understand subtraction in algebra; could not even do the examples mechanically; failed every day in it; suddenly one day, while working alone, it dawned on me, and since then I have had no trouble; it is the easiest thing in algebra now." *M.*, 27. "My students and I had worked several days on a problem in geometry; one night I went to bed after trying again and failing; the next morning on awakening the solution of the problem was so distinct before my mind I saw it in visual terms." *F.*, 22. "When grandmother died everything seemed so dull and dreary, as if a dark cloud hung over me; couldn't seem to get comfort from anyone or even prayer; when I prayed seemed as if words had no meaning at



all; was in this condition more than one month, when suddenly cloud broke away and I found comfort in my Bible." *F.*, 27. "With sudden flash I saw meaning of, 'And ye shall know the truth and truth shall make you free;' perception had almost character of physical thrill; power to perceive grew gradually in experience; the perception was sudden." *F.*, adult. "Had married; husband was jealous of my love for my invalid sister, who had lost her health for me; forced me to leave her; went back to her with my baby, and was able by teaching music to make scanty living for three; husband begged me to return west; I refused, though I was heavily burdened; my judgment told me to stay, but my heart yearned after him; I went to God and wrestled in prayer half the night; at 2 o'clock peace came; He took away my love for my husband; it left me in an instant, and has never returned; now I feel free." These changes are especially similar to the conversion experiences which follow what was called the sense of incompleteness.

(d) *Sudden changes*: The following illustrate the sudden break in character at conversion: "I disliked bananas very much; one day on tasting one I found I liked them very much, and since cannot get enough of them; it was just the same with cooked onions." *F.*, 9. "When about nine was very fond of bananas; cousin gave me all I could eat; became sick at stomach; after that had same sick feeling whenever I saw bananas." *F.*, 17. "Never could bear taste of turkey; two years ago was visiting and had to take it or be rude; have liked it ever since." *M.*, 21. "To one particular fellow in our club I took a great dislike; he never did anything to me; always treated me kindly; I never knew why I disliked him." *F.*, 18. "Knew girl whom I thought great deal of; one day I happened to think of her, and just then I felt that I didn't like her at all; seemed strange to me, and I thought I could not dislike her; but all her bad traits stood out before me, and I couldn't see anything in her to like at all." *F.*, 17. "I once had a teacher whom I simply detested; I detested her so much that I thought of her constantly; one day I happened to pass her in the hall; I do not know what she did, in fact I think she did nothing, but just as quickly as she passed me my hatred turned to love; I know it sounds foolish to speak of loving anyone like that, but I positively adored her." *M.*, —. "Little nephew played unceasingly with little niece; when she died, from being a gay little fellow he became sad, and has been of a sallow and cranky disposition ever since." *F.*, 18. "Was always being teased when I was small, so that small things made me very angry; when in an angry fit one day a little girl friend came in; I told her sharply to go home; she went and became very ill; I never got into such states any more." *M.*, 5. "When about five displayed violent temper; one day in unrestrained rage I chased next older brother around yard and into house, hurling things at him like a young gorilla; my mother was so concerned about me that she wept (she was not the sort of woman to 'cry') in genuine discouragement, and said she didn't know but I would have to go to the reform school; I truly repented; after a short nap I sought her good will, and ever afterward was noted for obedience and docility." "Uncle had horse which was great favorite and as gentle and docile as could be; was once frightened by a fire engine, and after that he became so vicious that it was not safe to drive him." "Knew of a horse which delighted in kicking, biting and running away; its owner was afraid even to feed it; he gave it away; the new owner geared the horse to drive it home; it tried to kick; he gave it a good beating; he never had any trouble

with it after that; he would let it stand without tying." *M.*, 5. "The child of my friend was much spoiled; while I was with him the child became unmanageable; the father held him firmly several hours; at last the child stopped kicking and crying and said, 'Papa, I love you,' and was good after that." "Young man took school; boy nearly as old as he spit tobacco at him first day; teacher measured him, and decided he could shake him; almost an even match; succeeded in giving him sound thrashing; after that day boy was his admirer." *F.*, 7. "My music teacher asked why I hadn't practiced a certain thing; I said, 'Because I didn't want to,' she said, 'that is a very bad habit; do you always expect to do what you want to in this life?' No one can ever expect to; immediately made up my mind never to do things very agreeable to me; from that minute I was a different person; felt it was almost wicked to do things which I liked, and sought disagreeable things to do; did it just because I was convinced it was the right way to live." *F.*, 7. "When a child I got in the habit of putting my thumb in my mouth at night; my parents did everything they could to break the habit, but did not succeed; when about six I became ashamed of the habit, so one night I lay on my hand all night; I never put my thumb in my mouth again at night." *F.*, 17. "Broke slang habit; put papers over bureau, washstand and bed with words, 'Don't use slang;' took paper and wrote every word of slang that slipped; before I broke habit was discouraged, discontented, and in small way angry with myself; after I succeeded I was happy, and the words that came from my mouth seemed to please not only me, but my mother." *M.*, 20. "For years had indulged in habit of profanity; when 20 was elected teacher of country school; felt I ought to set good example to pupils; about same time the reading of the Chautauquan course set me to thinking, and led me to adopt a higher ideal; as soon as foolishness of habit was brought to my notice, I made one firm resolve and the battle was won." *F.*, 53. "When I was about 40 I tried to quit smoking, but the desire was on me and had me in its power; I cried and prayed and promised God to quit, but could not; I had smoked for fifteen years; when I was about 53 years, as I sat by the fire one day smoking, a voice came to me; I did not hear it with my ears, but more as a dream or sort of double think; it said, 'Louisa, lay down smoking;' at once I replied, 'Will you take the desire away?' But it only kept saying, 'Louisa, lay down smoking!' Then I got up, laid my pipe on the mantel shelf, and never smoked again, or had any desire to; the desire was gone, as though I never had known it or touched tobacco; the sight of others smoking and the smell of smoke never gave me the least wish to touch it again."

In these common experiences are shown all the steps of conversion, even the most unaccountable and mysterious. These facts do not explain conversion, but they do make intelligible the processes involved in the same way that all natural phenomena come to be understood. They help to make it clear that, however inexplicable, the facts of conversion are manifestations of natural processes. We accept them as mental laws because we see them working here and there and everywhere in the sphere of psychic life. Each of the above phenomena seems to be the special thing of which conversion is the general. To break a habit involves one small group of tastes, or desires and faculties, conversion takes the whole bundle of them. An awakening to one specific truth involves one faculty; the great awakening which we fitly call a second birth, is a similar awakening into larger spiritual insight. Each of the above experiences is the part of which conversion is the whole.

## A GENERAL VIEW OF CONVERSION.

Such are the facts, as nearly completely objective as it was possible to give them. Their value is in the light they may throw on life forces and processes. It is each person's right to put his own construction on them. The following is a brief statement of the interpretation of them which has grown up during the study:

(1) *A sociological and biological view.* Conversion is primarily an unselfing. The first birth of the individual is into his own little world. He becomes conscious and self-conscious. The universe is organized about his own personality as a centre. His own will is law. His own individual insight is order. He soon finds there are other wills than his own. There is a complex, organized social will. A clash is apt to come between the self and whole. The social will is stronger, and the individual must adjust his will to it; then his sympathies follow the direction of his new insight, and he transfers his centre of life and activity from the part (himself) to the whole (society). When he attains the power to think in abstract terms, he becomes conscious of a world order outside himself. Then he begins to feel after the reality and worth of its spiritual content. He becomes dimly conscious of its unity and its authority. He must learn to submit himself to it and be guided by a larger life outside his own. With new insight comes new beauty. Beauty and worth awaken love—love for parents, kindred, kind, society, cosmic order, truth, spiritual life. The individual learns to transfer himself from a centre of self-activity into an organ of revelation of universal being.

The period of adolescence is naturally the time for the awakening into the larger life. It begins with puberty. Biologically that is the period when the person begins vitally and physiologically to reach out and find his life in another. The life of two united in love, each making demands on the other, and living for each other, becomes the centre of organized life, and comes, through the family, to reflect the entire social order. Thus the advent of puberty becomes a natural doorway for entrance into the larger life outside the self. Family life furnishes the opportunity for every kind of fresh exercise of power through the necessity for providing, for defense, for growth, and the like, and brings with it an increment in the development of all the powers of one's being. We have seen that the most rapid growth of the individual is at puberty, and that the greatest increase and readjustment is in the nervous system. This reorganization of nervous tissue furnishes the basis of new insight, the means of appreciation of the larger spiritual world.

(2) *The physiological view.* It is pretty well known that the quality of mind is much dependent on the fineness of nervous structure. The child has about as many nerve cells as the adult. They differ from those of the adult in form. Those of the child are mostly round, whereas those of the adult have often very many branches with which they connect with other cells. Nervous growth seems to consist largely in the formation of new nerve connections. The rapid growth at puberty probably means that at that time there is a great increase in nervous branching. The increased ramification of nervous tissue probably determines the ability for seeing in general terms, for intellectual grasp, and for spiritual insight. The rapid formation of new nerve connections in early adolescence may be the cause of the physiological unrest and mental distress that intensifies into what we have called the sense of incompleteness which precedes conversion. The mind becomes a ferment of half-formed ideas, as the

brain is a mesh of poorly organized parts. This creates uncertainty, unhappiness, dejection, and the like, because there is not the power of free mental activity. The person is restless to be born into a larger world that is dimly felt. Finally, through wholesome suggestions or normal development, order comes and the new world dawns. Often some emotional stress or shock strikes harmony into the struggling imperfection and truth comes like a flash.

(3) *The psychological view.* Seen from the standpoint of what was designated "consciousness" earlier in the paper, conversion becomes the sudden readjustment to a larger spiritual environment when once the norm has been lost, or when it is dimly felt, but not yet attained. In answer to the question, "What acts or faults have you committed which you knew at the time were wrong; why did you do them?" there were several replies. The wrong acts performed knowingly were of two classes: first, those in which some immediate desire was stronger than a remote truer one, and secondly, those in which associations and social complications led the person against his or her private judgment into a wrong course. The last class was strongly mixed with personal imperfections, such as natural willfulness, abnormal tastes, and native inertia. These, and perhaps other causes, tend to lead one away from the straight, middle way. When once one has gone wrong, the force of habit, pride in self-direction, etc., tend to make the life persist in its own course and to resist any forces which would throw it into a better way. The conflict between the accepted course and the truer one which is pressing for recognition through the dawning of fresh truth, or through the influence of organized social life, creates those disturbances in the individual which can only come to rest through a readjustment of his life, often sudden and eruptive, into harmony with the new demands or new truth. If the normal life were represented by a straight line, that actually chosen would be a line starting in the same direction, but swerving to one side. The individual pushes on in his own course until dissipation of power and physical and mental exhaustion make it necessary to surrender the old self for a larger one. If the straight line representing the norm were one side of a triangle, the way actually pursued would be represented by the other two sides.

Something like what seems to take place at conversion is shown in Figure VI. In No. (1) of the figure the lines going in the direction (a) represent the way old habits, associations, tastes and ideas

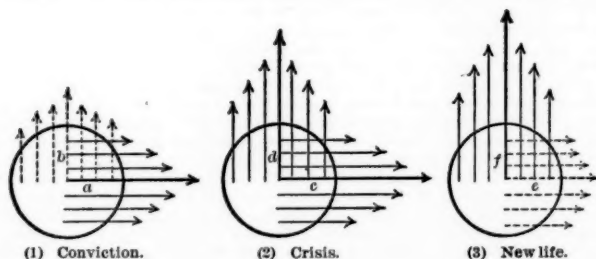


FIGURE VI.

tend to carry the current of life. Lines going in the direction (b) are the beginnings of a possible better life,—purer associations, coöperation with others, regard for future interests, ideals held up by the church, love of truth, a glimpse into a larger spiritual world beyond the self. Thus the even flow and harmony of life are destroyed. The person is pulled in two directions. This conflict between the old habitual self and a possible better one results in those conviction phenomena described as the sense of sin and the feeling of incompleteness. As the call toward the new life becomes more urgent, the situation is shown in No. (2) of the figure. (c) is the habitual self striving with all its might to preserve its self-consistency. (d) is the divine urging which has become imperative and irresistible. Here is the critical point, the tragic moment. The subject resorts to evasion of good influences, pointing out the perfection of the present self, the imperfections of others, and anything to preserve the old self intact. It is more often a distress, a deep undefinable feeling of reluctance, which is perhaps a complex of all the surface considerations which a thorough break in habits and associations would involve. He continues until complete exhaustion takes away the power of striving; he becomes nothing; his will is broken; he surrenders himself to the higher forces that are trying to claim him; he accepts the higher life as his own. The next stage is shown in No. (3). Only a vestige of the old life (e) is left. The new self (f) is now the real self. The conflict has ceased and there is relief. The depression has gone and gives place to joy. The pain from friction between contending forces becomes now the pleasure of free activity. Harmony is restored, and there is peace. The facts in the preceding study nearly all seem to fit into such a scheme. The phenomena up to the change itself have been sufficiently discussed. The various things given as essential in the change become more clear. "Self-surrender" and "new determination" seem at first entirely contradictory experiences, which often follow the same conviction states and precede similar post conversion phenomena. They are really the same thing. Self-surrender is seeing the change in terms of the old self; determination sees it in terms of the new. Each overlooks, for the time, one fact,—self-surrender, that the essential part of the old enters the new, and that really nothing is given up, and on the other hand determination does not stop to estimate the quality of its losses. The frequent phrase, "determined to yield," stands half way between and expresses, perhaps, more nearly the truth of the process. Where the change is attributed to "divine aid," the new forces which come to lead into a larger life are entirely objectified and become the influence of some outside personality or spirit. "Forgiveness" involves the same tendency to objectify the forces at work, and also the sense that the old life is no more—has been forgiven. "The feeling of oneness" (with God or Christ) is the experience in which the most prominent thing which presents itself at the time is the sense of freedom and harmony that follows the change, and the consciousness that the life is now the completer embodiment of the larger spiritual world. "Public confession" is much the same as oneness with God. To the nature which has not yet grown into the power of deeper intuitions, the sanction of friends, compliance with church rites, and the like, stand more distinctly for oneness with God. The same person more highly developed might have described the central thing in a similar experience as harmony with the will of God. The experiences immediately following conversion, called theologically "regeneration," are such as would naturally come after the steps described.

Psychologically they are in line with the phenomena of fatigue and rest, of repression and free activity.

(4) *Pedagogical view.* The differences between the male and female and revival and non-revival cases lead to some definite pedagogical inferences. In the first place, the custom of some religious bodies of working toward a distinct break in the life and a sudden awakening to a higher life is in line with something entirely normal in human nature, and which often comes spontaneously in the natural growth of the individual. Especially in the case of persons who have gone far astray, or who lack self-reliance and need the stimulus of outside influences to escape an imperfect way. For such instances, the methods conventionally used seem altogether wholesome. It is a matter for the most serious consideration, however, how the helpfulness of the revival service can be kept and its disadvantages avoided. It is significant that of the whole number of cases studied, only two or three of those who had been through revival experiences spoke in unqualified terms of approval of the usual methods employed. There were a few of the number who condemned them severely. There was a general deprecation of the emotional pressure usually exerted, and this coming from the converts themselves should be of value. We have seen that the average age of revival conversions is considerably less than the non-revival, which shows they have been hurried. There is every evidence that many of them have been hastened unduly. Many were left out of the study because they had clearly been forced into compliance with what they were not ready intelligently to accept. They were pulled green and withered. It was especially true in the case of sensitive girls who were carried away by the excitement, and afterward awakened to the fact that it was not a true experience. It is like pulling away the folds of a growing bud to disturb unduly the tender unfolding of religious nature. The greatest difficulty seems to be that the hardened natures who need the help of violent methods for restoration are the last to respond, and meanwhile much harm is done to those who are receptive and responsive to finer influences. Unless the person is ready for a change, the results of hastening conversion are apt to be temporary and soon followed by relapse. We have seen that "back-sliding" much more often occurs after revival experiences than after the others. The question is, how can we preserve the essential things in revivals, and at the same time escape their evil effects? How can the uninterested be led to identify themselves with righteousness, and the wayward be reclaimed without harm to those who least need the influence of revival tactics? A few things are suggested by the study, which can only be most briefly hinted. People should be dealt with as individuals as far as possible instead of in masses. Still, the force of the ensemble should be preserved in furnishing the necessary stimulus to carry the "seeker" out of his slough. The higher motives should be appealed to more and the lower ones less. It is doubtless entirely out of proportion that one-third of the subjective forces present at conversion were self-regarding (mostly fears), while the number of distinctively altruistic motives were only one-third as frequent as the self-regarding. The lower ones should, of course, not be neglected. If a person has become an habitual transgressor of right, it is not only pedagogical, but true to the facts of life to bring him squarely to face the evil consequences of his ways, and to feel the awful authority of the moral and spiritual order. But conversion means unselfing, the entrance into a new life of insight and love, and the wise teacher will naturally hold up those incentives which



are in direct line with the new life. If men were reached more on their God side, the possibility of lifting them into a higher life would be greater and the results more permanent. The consciousness of the influence of wholesome teaching and high example is painfully absent in the cases studied. The love of God and Christ, which is supposed to be central in Christian theology, almost never appears. Exactly what the person needs who is struggling in haze and darkness and uncertainty is to have the mind clarified, to have the ragged bits of awakening consciousness struck so they may organize themselves in the direction of some high ideal, instead of in a chance or haphazard manner. It cannot be discussed here how these demands can be met practically, but they are of too great importance to be disregarded. It is necessary that we understand more fully the processes involved in conversion to adequately meet the needs of human nature. For example, it will appear from the preceding study that often when adolescents are in the throes of conviction, what is needed rather than excitement and emphasis of sin is treatment purely physiological and sanitary.

It must be evident that conversion is not a matter for the churches alone. It is under certain conditions a vital, normal step in individual growth. We have seen that all the phenomena of conversion show themselves everywhere in the psychic life. They should be accepted and utilized as belonging to growth. Each step is of frequent occurrence in common life. Sudden awakening to specific definite bits of truth are accepted as natural. We shall learn not only to anticipate, but to bring about such conditions as will foster an awakening of the whole being to larger insight. It is not a surprise that a habit should be broken and never return. It is perhaps even more natural and easy that the whole group of tastes, desires and habits which make up a character should be radically changed. It is easier to take the whole skein than to extricate one tangled thread. That conversion is deep and central in human nature we know, because it appeals, as we have seen, to the most primal instincts; we know, that its central laws are in accordance with well recognized biological principles, and that in its results it is an awakening to the highest ethics. It should be recognized as never before that a birth into new life is something that belongs to human nature. The old cult has been narrowed and abused. Consequently it has been dropped by many of our so-called liberal churches, and is willfully neglected in psychology and education. It needs to be saved from its narrow uses, and its truth refined, broadened, deepened and utilized. When restored it may have little likeness to its old forms, but will incorporate their essential truth and the wisdom which psychology and experience may be able to furnish.

The fuller discussion of the nature of conversion can be better presented after organizing the returns to section B of the syllabus in regard to gradual growth. It appears, so far, that the essential processes of conversion are quite in harmony with well recognized psychological laws, and that in its results it agrees with the truest ethics and with the tenets of the leading faiths of the world. It is the birth of the individual out of self into a larger spiritual world in which he finds his life. It is the individual will coming in harmony with the Divine Will.

The foregoing study is a modest beginning of what aspires to become a psychological study of the religious consciousness. In this time when the empirical methods of study are being so successfully applied to every department of research, and have at last reorgan-



ized our knowledge of the psychic life, it seems a most natural step that they should also help to increase our insight into the laws of the spiritual life. If the reader has found the preceding pages helpful, no farther explanation is necessary of the methods to be used, or the purpose in view. It is the intention to carry the same methods into the study of several other related topics. Before such an end can be successfully attained, it is necessary that sufficient raw material be accessible to make generalizations safe and illuminating. For the accumulation of such data the writer is almost entirely dependent on the coöperation of those who are sufficiently interested to take the time and pains to give their assistance. The facts for the foregoing study were collected by continued effort during three years. The energy that is used in getting together such material might be spent in the actual study if only it were more clearly seen that the motive behind the research is primarily in the interest of religion; for then all earnest people would be glad to coöperate. An urgent appeal is hereby made to any who are willing to assist farther in this or in the later topics by furnishing facts out of their own experience, or that have come under their own observation, to send in their names immediately to the writer, and questionnaires will be sent as the facts are wanted. His address for the present college year will be Clark University, Worcester, Mass. Many more answers are needed to section A of the present syllabus. There are many dark problems still that want farther discussion in regard to sudden conversion and confirmation. Especially are answers wanted to section B on gradual growth, the returns from which are now in process of organization. Perhaps it will be regarded as a slight compensation for their pains that copies of the results will be furnished to any who are willing to assist in getting together the facts. But the study is undertaken almost purely in the interest of both science and religion, and must depend on the unselfish help of those who are interested.

## PSYCHOLOGICAL LITERATURE.

*Elements of General Philosophy.* By GEORGE CROOM ROBERTSON, late Grote Professor, University College, London. Edited from notes of lectures delivered at the college, 1870-1892, by C. A. Foley Rhys Davids, M. A. New York, 1896. Charles Scribner's Sons.

This work is a brief *résumé* of philosophical problems and philosophical theories, written with definite reference to psychology. The original lectures were designed to complete the author's course in psychology, published by the same editor as "*Elements of Psychology*." The work is divided into two parts. The first contains a very short and concise history of philosophy, with an incidental treatment of the main problems of the different periods. Of these the theory of knowledge receives by far the greatest attention. In this connection there is given a complete though brief statement of the theories of the different thinkers from Plato to Mill and Bain. In summary the subjective, idealistic factor is resolved into the inherited mechanism of the body; the Kantian *a priori* is replaced by the experience of the race. This is very similar to Spencer's doctrine, but is more carefully worked out and more clearly formulated.

Another peculiar theory or rather peculiar reversion to an ancient doctrine is given in the discussion of the question of perception of an external world to explain the concept of substance. Prof. Robertson cannot believe that substance is but the sum of its attributes. It must be something more. This something more must be something mental like ourselves, because, as Berkeley has shown, dead matter has no meaning for us. But we cannot say with Berkeley that its perception by us is a sufficient explanation of the mental element. The attributes must themselves be held together by a mental activity. Here we find a return to the monads of Leibniz, rendered all the more striking by the generally modern tone of the work. The first part closes with two more special chapters, one on the normative sciences, logic, ethics and aesthetics, and their relation to each other and to psychology; the other on ethics in general.

In the historical exposition of this part the chief emphasis is laid upon the English philosophers. The entire account of the English school is masterly, and much more sympathetic and painstaking than the treatment usually accorded in the German works now recognised as standard. The second part supplements the first by a series of lectures on Plato, Aristotle, and the modern philosophers from Descartes to Kant.

The work as a whole furnishes the lay reader with a valuable and very readable statement of philosophical doctrine, and will give new points of view to the philosophical thinker who is unacquainted with Prof. Robertson's system. It is too brief and not

consecutive enough to find a place as a text-book. Mrs. Rhys Davids deserves great credit for the skill with which she has pieced together the materials at her disposal. To an unsuspecting reader the book would not betray the fact that it was not written at first hand. We can safely predict that it will continue the influence which the author exerted while living, and which would have undoubtedly been increased except for his untimely death.

W. B. PILLSBURY.

*Immanuel Kant's Critique of Pure Reason.* Translated into English by F. MAX MÜLLER. The Macmillan Co., New York, 1896, pp. xxvi, 808. Price, \$3.00.

Max Müller's translation of the Critique is too well known to need more than the mention of this new and cheaper edition. The back of the title page bears the legend, "First edition printed in 1881. Reprinted with alterations, 1896." The alterations from the two-volume edition of 1881 appear to be, as to matter, the omission of the translator's preface and the historical introduction by Noiré; and, as to form, the use of a smaller though very legible type and a slightly smaller page. These changes reduce the present volume to the text of Kant's first edition of the Critique and the supplements, which show the changes that were made in his second edition. Students of Kant will be grateful to the publishers for making this translation accessible at a reasonable price.

*An Outline of Psychology.* By EDWARD BRADFORD TITCHENER. The Macmillan Co., New York, 1896, pp. xiv, 352. Price, \$1.50.

In this book Prof. Titchener gives the substance of his university lectures to Sophomores and Juniors at Cornell. The work is written from "the traditional English standpoint," but its purpose is a brief and simple exposition of the newer experimental psychology. For such a task Prof. Titchener is singularly well qualified, having added to an Oxford B. A. and Leipzig Ph. D. a number of years of independent teaching and research. The book presents methods and results without the scaffolding of tables and details which have often added to the obscurity of the larger works. Extended criticism of the psychology of the work is reserved for a later number.

*Von Darwin bis Nietzsche.* Von DR. ALEXANDER TILLE. Naumann, Leipzig, 1895, pp. 241.

An interesting little work and highly anathematized by the highly orthodox. Like young Germany, the author swears largely by Nietzsche. Nietzsche, the erratic, the eccentric, the aphoristic and the modern oracular Zarathustrian, is for him the high-water mark of the tide which has been rising so steadily since Darwin's days. Spencer, Leslie Stephen, Wundt, Huxley, Fiske, Williams, Bebel and others are shown to be so many landscapes on the road to Nietzsche. The trend of thought is, of course, biological and evolutionary. The *Abermensch*, the Beyond-Man, is the continued goal. A race of laughing lions is coming, strong men full of deeds and vigor. The cry is not Repent! but the true Metanoia, change of life and conduct; not so much humility and penance, as Grecian valor and Roman *virtus*. A high aristocratic *Herrenklasse*, the product of natural selection is his ideal. Consumptives must not marry. Only the fittest must survive. "*Nicht nur fort sollst du dich pflanzen, sondern hinauf!*"

The author's historical portrayal is good. In the development of thought here presented there are hints for certain methodological

considerations of great value. Ethics is becoming apparently a *science* in so far as it is portraying the history of ideals and their natural causes and consequences. The organisms that have the best ideals live, racially considered; there is a natural selection. Ethical progress is apparently as definite and certain as physical or organic evolution. Ethics is here a science. As an *art* it will have to do with present ideals, their practicability and the means for their attainment.

ARTHUR ALLIN.

*De la Croyance.* Par JULES PAYOT. Alcan, Paris, 1896, pp. 251.

The *question dominatrice* in psychology, morals and education is belief. The intellectualists are denounced for resolving everything into pure intellect. "We think and believe with all that we are, with our body as well as with our sensibility and our intelligence." Education of belief is possible. Certitude is nothing distinct in kind from belief. Epicurus and Hume wrongly held the type of all certitude to be in perception. Payot holds perception to be a very complex process of inductive reasoning, instantaneous and automatic. Hence there is room for error, and hence perception is not the highest type of certitude. Nor is certitude to be found in sensations, for they are wholly hypothetical. Nevertheless there are simple perceptions which we call sensations (light, sound, etc.); these possess irrefragible certitude.

What is objective reality? Not secondary qualities. There are, however, tactile sensations; these, though similar to secondary qualities, take on a character of solidity. These, along with the sensations of resistance, give us all the *permanent* qualities of objects. Space is the essential quality, and "space is constituted by our muscular presentations." The character which differentiates this "primary quality" from the secondary qualities is that of its *necessity*. The author also endeavors to show that "to believe is to restrain oneself from acting" (*croire c'est se retenir d'agir*). Belief and will are fundamentally the same, differing only in degree.

ARTHUR ALLIN.

## NOTES AND NEWS.

### THE LATE PROFESSOR DELBŒUF.

The last number of the JOURNAL chronicled the sudden death of its coöperative editor, Professor Delbœuf. The following details of his life and professional career may be of interest to psychological readers.

Joseph Remi Léopold Delbœuf was born at Liège in 1831, and spent the greater part of his working life as professor of classical philology in the university of his native town. He died at Bonn on August 14th of the present year, having been seized with illness as he was travelling to the third international congress of psychology held at Munich in the first week of that month. He carried his sixty-five years well; and no one who had seen him in 1895—still less one whose memory dates from the part he took in the London congress of 1892—would have anticipated his early death.

Professor Delbœuf was indefatigable as an author. He has made lasting contributions to philology, physiology, psychology and philosophy. Of his publications in the last two fields the most important are his *Prolegomènes philosophiques de la géométrie* (Liège, 1860); the *Essai de logique scientifique* (Liège, 1865); three volumes on 'questions in philosophy and science'; the *Examen critique de la loi psychophysique* and the *Éléments de psychophysique, générale et spéciale* (both Paris, 1883) and *Le sommeil et les rêves* (Paris, 1885); the *Étude psychophysique; recherches théoriques et expérimentales sur la mesure des sensations*, etc. (Brussels, 1873); *La psychologie comme science naturelle, son présent et son avenir* (Paris and Brussels, 1876); *Théorie générale de la sensibilité* (Brussels, 1876); *L'hypnotisme et la liberté des représentations publiques* (Liège, 1888); *L'hypnotisme appliqué aux altérations de l'organe visuel* (Paris, 1890); *Magnétiseurs et médecins* (Paris, 1890); *Le magnétisme animal, à propos d'une visite à l'école de Nancy* (Paris, 1889); *L'hypnotisme devant les chambres législatives des Belges* (Paris, 1892); etc., etc.

Professor Delbœuf owed his first allegiance to the *Revue philosophique*, to which he had contributed since its foundation, and where he concluded in April of last year his series of articles on the "Old and New Geometries." But he took a lively interest in the affairs of the JOURNAL, and had promised one if not two papers for the coming year. In him the world loses one of the most original and at the same time one of the most erudite of modern psychologists.

### CONGRESS NOTES.

The question as to the nature of feeling and emotion, though still a long way from final settlement, seems to have given place to a general interest in the more fundamental problem of the relation of mind and body. "Parallelism" and "interaction" were the

favorite topics of conversation, among normal psychologists at any rate, at the Munich Congress. The immediate impulse to this interest was imparted, no doubt, by the opening address of Professor Stumpf, who devoted the main body of his presidential speech to a polemic against parallelism. But recent psychological literature has been rife with discussions of the problem, and one of the features of the last meeting of the American Psychological Association was a debate on the place of consciousness in organic evolution,—a debate that has not yet been brought to a conclusion. At Munich the balance of professional opinion appeared to be on the side of parallelism; and it was noteworthy that the interactionists, following the presidential example, were content to support their own position by attacking that of their opponents. Positive arguments for interaction, on the lines of those urged, *e. g.*, by Professor James, were not forthcoming.

In his address of welcome the rector magnificus paid a special compliment to American psychology. The compliment was heartily applauded. Yet one could not fail to be struck with the ignorance of English-written literature displayed by German psychologists, and by the lack of it in German university libraries. This state of things is due, in part, no doubt, to the large attendance of English-speaking students at German seats of learning: if they are obliged to seek instruction in Germany, they cannot leave much that is worth knowing behind them. The German student himself very rarely travels outside of his own country for even a portion of his education. As the German Ph. D. becomes less a matter of course, and teachers get their training more in their home laboratories, it may be expected that Germany will come to hold foreign psychological literature in greater respect.

Herr Zimmermann had several new instruments or appliances on exhibition. Chief among them were the von Frey bristle-aesthesiometer, a novel and very convenient color-disc motor, the Marbe color-mixing apparatus, and some comparatively cheap drums for demonstration purposes. A new model time-sense machine was also shown in action; but the latest Meumann contacts were not displayed. Herr Zeiss had an interesting, if not particularly psychological, exhibit. Herr Appunn showed his steel wire forks for deep tones, along with other apparatus. Dr. Stern's arrangement for the obtaining of continuous tonal change by the rise of mercury in a blown bottle promises to be most useful, and should not be expensive, given the bellows. The other exhibits were, in the main, of 'technical' electrical instruments.

The Congress had one important reason for self-congratulation,—it attracted many eminent investigators in the fields of anatomy and physiology. Professor Flechsig gave what was, in some respects, the lecture of the whole meeting; Professor Exner read a paper; Professor Hering was present, though he took no part in the proceedings. All this is a new departure, and a very welcome one.

#### BOOKS RECEIVED.

- BOURNEVILLE. Discours prononcés les 7, 24, 25, et 28 juillet, 1896, aux distributions des prix des écoles municipales d'infirmières laïques. (Reprint, Laïcisation de l'Assistance Publique Enseignement Professionnel des Infirmières. No. 19, pp. 733-792.)
- BOURNEVILLE, *et al.* Recherches cliniques et thérapeutiques sur l'épilepsie, l'hystérie et l'idiotie. Compte-Rendu du service des enfants idiots, épileptiques et arriérés de Bicêtre pendant



- l'année 1895. Volume XVI, avec 31 figures dans le texte et 8 planches. F. Alcan, Paris, 1896, pp. lxxi-254.
- ELLIS AND SYMONDS. Das Konträre Geschlechtsgefühl. Deutsche Original-ausgabe besorgt unter mitwirkung von Dr. Hans Kurella. Pp. xvi, 308. Georg H. Wigand's Verlag, Leipzig, 1896.
- MÜLLER. Kant's Critique of Pure Reason. Translated into English by F. Max Müller. Pp. xxvi-808. The Macmillan Co., N. Y., 1896. Price, \$3.
- STRATTON. Ueber die Wahrnehmung von Druckänderungen bei verschiedenen Geschwindigkeiten. Separat-Abdruck aus Wundt's Philosophische Studien, XII Band, 4 Heft. Leipzig 1896.

#### ADVERTISEMENT OF THE WELBY PRIZE.

A prize of £50, to be called the *Welby Prize*, is offered for the best treatise upon the following subject:

*The causes of the present obscurity and confusion in psychological and philosophical terminology, and the directions in which we may hope for efficient practical remedy.*

Competition is open to those who, previously to October 1st, 1896, have passed the examinations qualifying for a degree at some European or American university.

The donor of the prize desires that general regard be had to the classification of the various modes in which a word or other sign may be said to possess 'meaning,' and to corresponding differences of method in the conveyance or interpretation of 'meaning.' The Committee of Award will consider the practical utility of the work submitted to them as of primary importance.

The essays, which may be written in English, French or German, must be typewritten, and extend at least to 25,000 words. They should be headed by a motto, and accompanied by a sealed envelope containing the name of the writer. They may be sent to any member of the undersigned Committee of Award, and must reach their address not later than January 1st, 1898. The right of publication of the successful treatise is reserved.

- Professor SULLY,  
1 Portland Villas, East Heath Road, Hampstead, London, N. W.
- G. F. STOUT,  
University, Aberdeen, N. B.
- Professor TITCHENER,  
Cornell University, Ithaca, N. Y.
- Professor KÜLPE,  
Würzburg, Germany.
- Professor E. BOIRAC,  
Lycée Condorcet, Paris.